JUNE, 1941 - 25 CENTS

# AMERICAN BUILDER

AND BUILDING AGE

THE WORLD'S GREATEST BUILDING PAPER

TECHNOLOGY DEPT.

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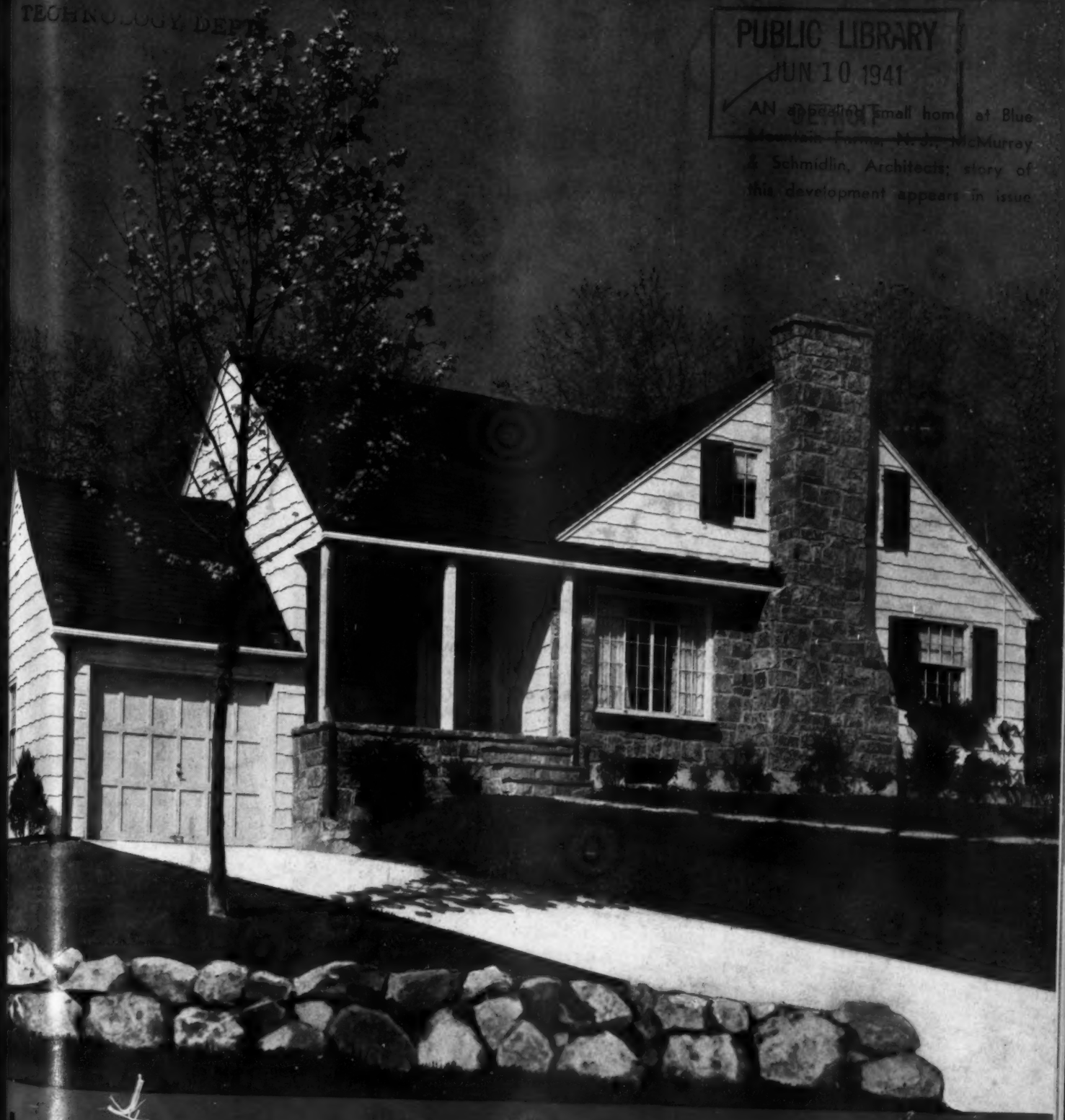
AN application of small homes at Blue Mountain Farms, Nesbit, McMurray & Schmidlin, Architects; story of this development appears in issue



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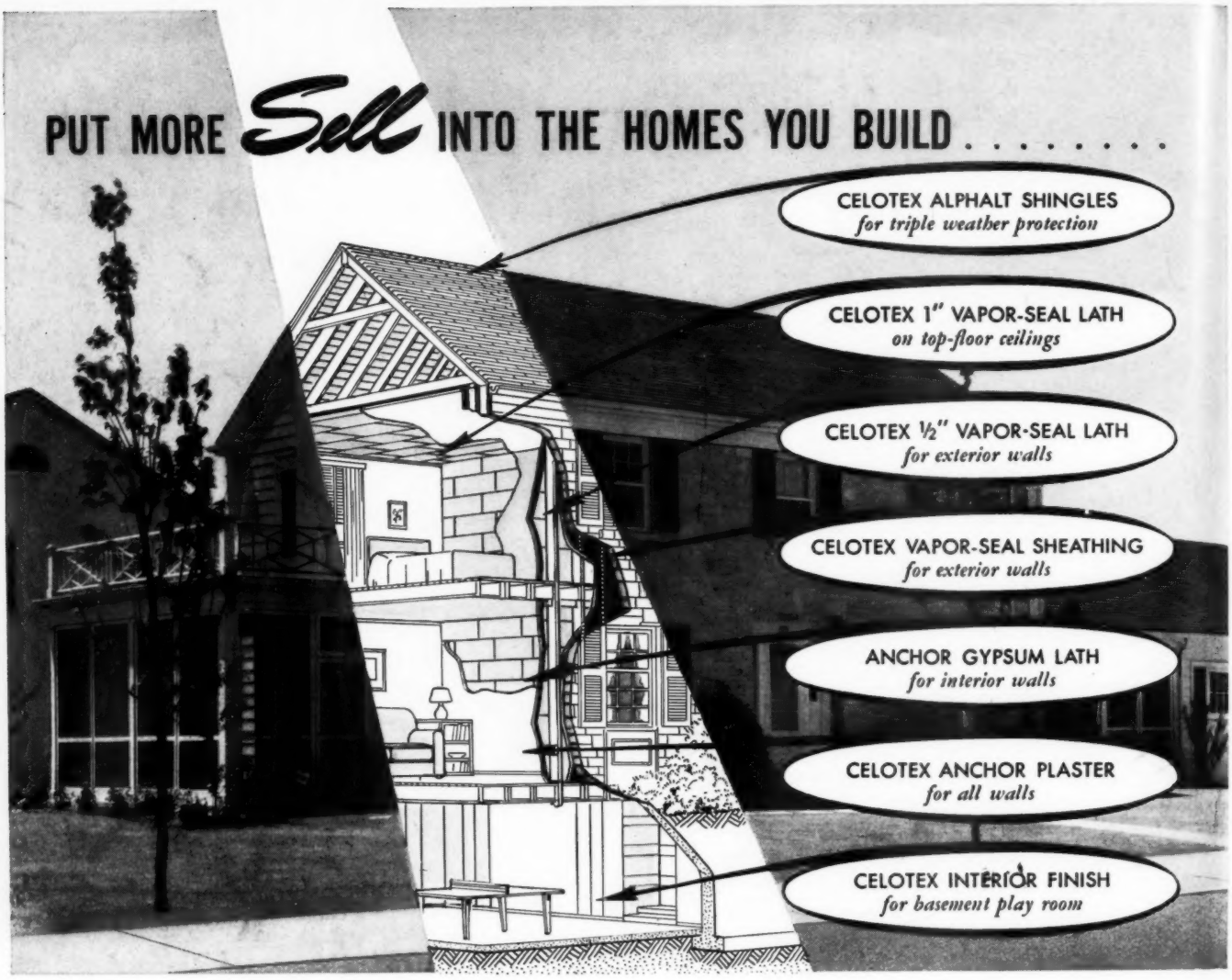


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# AMERICAN BUILDER
and Building Age

## CONTENTS FOR JUNE, 1941


Publisher's Page—by Samuel O. Dunn ..... 57
Editorial—FHA Should Be Continued! ..... 59
Blue Mountain Farms—Where "the Hard Way" Won Out ..... 60
A Complete, Candid Account of Land Planning, Production Methods and Merchandising Ideas of Braillard and Friedrichs.
Planning and Building a "Big" Small House ..... 64
Milo F. Gonser, Detroit Builder, Shows How Added Convenience Can Be Given a Five-Room House Without Increasing Cubage
What Price Houses? ..... 67
Country Gardens at Rye—by G. Harris Danzberger ..... 68
Blanket Insulation for Attics—by D. B. Anderson ..... 70
Recommendations for Insulating and Ventilating Attic Space for Reducing Winter Heat Loss, Summer Cooling and Control of Condensation
Attic Fan and Furnace Unit Above Ceiling ..... 73
"We Manufacture Our Prospects 2 Years Ahead" ..... 74
Defense Boom in Charleston, S.C. ..... 76
Experimental Short-Length Paneled House ..... 77
Asbestos Siding Profits—by J. Harold Hawkins ..... 78
Southern Home Built for Future Expansion ..... 80
Interiors of California Model Home Harmonize with Colorful Floors 82
Plywood Details for the Finish of a Paneled Period Room with Fireplace ..... 84
Service to Readers Department ..... 86
On & Off the Record ..... 94
Review of the News ..... 99
Letters from Readers ..... 105
Books on Building ..... 108
Producers Tell Us— ..... 109
Practical Job Pointers and Building Data ..... 117
$66 Fuel Bill Shows the Results of Quality Building ..... 122
Fire Resistance Tests of Plywood-Covered Wall Panels ..... 124
How to Ventilate Insulated Roofs ..... 130
TruCost Department ..... 143
Advertisers' Index ..... 146

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# PUBLISHER'S PAGE

## "Wars on Two Fronts"?

THE American people are virtually unanimous in supporting every effort and expenditure of the national government to provide for defense. But the people are seriously divided, nevertheless,—divided because millions of them believe the administration is double-crossing them by pursuing certain policies that are incompatible, first, with an adequate defense program and, second, with the nation's economic welfare. Here are *facts* showing one vitally important reason why the people are divided:

In 1933 the *civil* expenditures of the federal government were 2,000 million dollars. This figure includes nothing for the army, navy, air force, pensions or payments on the principal or interest of the public debt.

In 1940 the *civil* expenditures of the federal government were 6,656 million dollars —4,656 million more than in 1933. This figure also includes nothing for the army, navy, air force, pensions or payments on the principal or interest of the public debt.

THAT vast increase between 1933 and 1940 of almost 5 billion dollars in the *civil* expenditures of the government was *ostensibly* made to (1) *temporarily* stimulate business and employment and (2) provide relief for the unemployed and their families. The government is now increasing its defense—i.e., *military* expenditures by 10 billion dollars a year,—and plans to increase them by 20 billion dollars a year. This plainly not only makes wholly unnecessary—if it ever was necessary—the huge increase in civil expenditures, but demands and necessitates drastic reduction of these expenditures—reduction by at least 50 per cent, or over 3 billion dollars annually.

Why? These hugely increased *civil* expenditures take money, men and materials required for an adequate *defense* effort, and therefore interfere with it. They also, by unnecessarily increasing taxation and the government debt, add greatly to the burden on private property, private business and private incomes, while taking not only money, but also men and materials, needed in private business. In addition to which, as emphasized on this page last month, the addition of huge government *civil* expenditures to huge government *defense* expenditures is the surest way to cause *uncontrollable inflation*—the most deadly economic danger confronting the American people.

CONSIDER some of the loose but dangerous talk emanating from high places in Washington. A New Deal economist said recently it might be necessary to restrict *private building* to prevent it from interfering with the defense effort. This raises a direct issue—huge government *civil* expenditures versus *private business:* huge government expenditures on tax-eating *public works,* St. Lawrence seaways, Florida ship canals, super-highways, government housing, and so on, versus *tax-paying home-building by private capital and private enterprise.*

Small wonder the people are divided when administration spokesmen raise this and other similar issues. Patriotism does *not* require support by the citizen of *all* policies of the administration. It requires support by the citizen of policies he believes *for* the national interest and *opposition* to those he believes *against* the national interest.

And the people will become more and more divided as long as the administration persists in policies of expenditure plainly intended not only to attack the nation's enemies abroad, but *also to attack its private enterprise at home.*

Samuel O. Dunn,

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# SAVES 4 WEEKS AND $8255

*Contractor:* Corbetta Construction Co., New York;
*Architect-Engineer:* Victor Mayper, New York

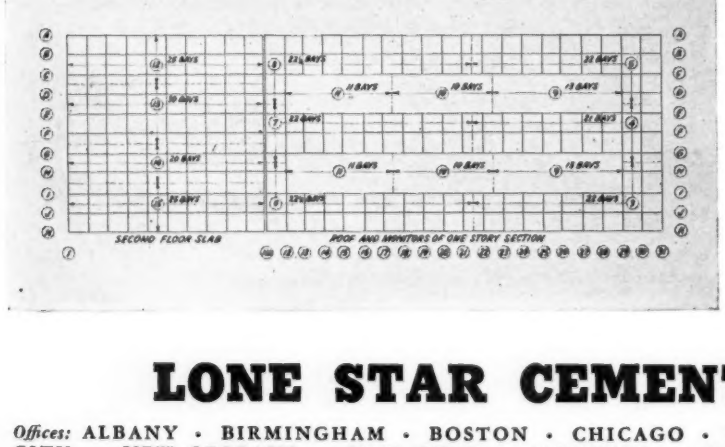
JOB SCHEDULE

| POUR NO. | LOCATION | | NUMBER OF BAYS | EXCAVATION, FOUNDATION, GRADE | FORM | REINFORCING AND TRADES | CONCRETE | STRIP | REUSE AT |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1ST FL. | 32½ | SEPT. 21 | SEPT. 23-24 | SEPT. 25 | SEPT. 27 | SEPT. 30 | 3-4 |
| 2 | | 1ST FL. | 32½ | " 23 | " 25-26-27 | " 26-27 | OCT. 1 | OCT. 2 | 4-5 |
| 3 | | ROOF | 22 | - | SEPT. 30 OCT. 1 | OCT. 1-2 | " 2 | " 4 | 6 |
| 4 | | | 21 | SEPT. 30 | OCT. 1-2 | " 2-3 | " 3 | " 7 | 7 |
| 5 | ONE STORY BUILDING | | 22 | OCT. 2 | " 3 | " 4 | " 7 | " 9 | 8 |
| 6 | | | 22½ | " 3 | " 4 | " 7 | " 8 | " 10 | 9 |
| 7 | | | 22 | " 5 | " 7-8 | " 8 | " 9 | " 11 | 9-10 |
| 8 | | | 22½ | " 8 | " 9 | " 10 | " 11 | " 14 | 10-11 |
| 9 | | MONITOR | 26 | - | " 10 | " 11 | " 14 | " 16 | 12 |
| 10 | | | 20 | - | " 11 | " 14 | " 15 | " 17 | 12-13 |
| 11 | | | 22 | - | " 14-15 | " 15 | " 16 | " 18 | 13 |
| 12 | | 2ND FL. | 25 | OCT. 15 | " 16 | " 17 | " 18 | " 21 | 14 |
| 13 | | | 30 | " 16 | " 17-18 | " 18-21 | " 22 | " 24 | 15-16 |
| 14 | | | 20 | " 18 | " 21 | " 22-23 | " 24 | " 28 | 17 |
| 15 | TWO STORY BLDG | | 25 | " 22 | " 24 | " 25 | " 28 | " 30 | 18 |
| 16 | | ROOF | 18 | - | " 25 | " 28 | " 29 | " 31 | 19 |
| 17 | | | 32 | - | " 28 | " 29 | " 30 | NOV. 1 | 19 |
| 18 | | | 26 | - | " 30 | " 31 | NOV. 4. | " 6 | - |
| 19 | | MONITOR | 24 | - | OCT. 31 NOV. 1 | NOV. 4 | " 5 | " 7 | - |

FLOORS ON EARTH ONE STORY BLDG WK. END NOV. 1
FLOOR " " 2-STORY " " " " 9

BASIS OF SCHEDULE:
FORMS ARE FURNISHED FOR 68 BAYS. 'INCOR' CEMENT TO BE USED, PERMITTING COMPLETE STRIPPING 2ND MORNING AFTER POUR. THE 68 BAYS ARE USED FOR 3 DAYS POUR WITHIN SAME CALENDAR WEEK. ALL BAYS FOR GIRDERS, BEAMS AND SLABS ARE COMPLETELY REUSABLE EVERYWHERE.

Utilizing 'Incor's 24-hour service strength and forming only 15% of the area, a carefully prepared progress schedule enabled Corbetta Construction Co., Inc., to complete this factory building in record time—at minimum cost. This job shows that form economies are possible on one- and two-story buildings as well as on multi-story structures.




## *Planning with 'Incor' Produces Top Speed at Minimum Cost*

SPEED is the need of the hour. Good job planning and 'Incor' 24-Hour Cement save vital weeks and often reduce construction costs.

As a result of careful planning, Crawford Clothes factory, occupying an entire city block in Long Island City, New York, was completed in record time—at minimum cost.

Corbetta Construction Co., Inc., general contractors, estimated this one- and two-story building, of reinforced concrete beam-and-girder design, on the basis (1) of forming 50% of the required area, or (2) by using 'Incor' 24-Hour Cement and forming about 15% of the area. Either method meant a time saving of about 4 weeks over usual schedules. *But 'Incor' showed a net cost saving of $8255, as against the extra forms needed for the same construction speed.*

'Incor'* was used in the frame; elsewhere Lone Star was used. The job was completed in record time—faster speed at lower cost. Write for copy of "Cutting Concrete Costs." Lone Star Cement Corporation, Room 2234, 342 Madison Avenue, New York.

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AMERICAN BUILDER
AND BUILDING AGE

# FHA Should Be Continued!

APPEARING before the House of Representatives Banking and Currency Committee on May 10, Federal Housing Administrator Abner H. Ferguson supported legislation introduced by Chairman Steagall to extend provisions of the National Housing Act otherwise due to expire on July 1.

Mr. Ferguson recommended extension for three years of the FHA's authority to insure lending institutions against loss on modernization loans under Title I, continuation of the FHA's authority to insure mortgages on existing construction under Title II, and increase in the limit of mortgage insurance under Title II from $4,000,000,000 to $5,000,000,000.

Now that Title I insurance is on a premium-paying basis the modernization and repair loan program is producing revenue at the rate of $5,000,000 a year and is approaching a self-sustaining basis, Mr. Ferguson said.

"In view of the fact that about one-third of the nation's homes are between 25 and 50 years old," he said, "it is obvious the Title I program can perform a vital function in the present emergency. This type of financing offers a practical and proven answer to the problem of how to utilize these old homes, many of which can be profitably modernized and converted into multi-family dwelling units, especially in areas where housing conditions are still unsatisfactory."

Mr. Ferguson recommended increasing the limitation on the amount of modernization loans to $5,000 from the present $2,500 and the period of repayment to five years in the case of loans above $750 from the present three years. He also recommended an increase in the upper limit of Class 3 Title I loans used for constructing new small houses to $3,000 from $2,500.

With regard to the Federal Housing Administration's authority to insure mortgages on existing construction, due to expire on July 1, Mr. Ferguson said that "to deprive existing construction of the advantages of FHA financing would have a depressing effect on the value of almost every home now standing."

Since July 1, last, when the defense program began to get under way, construction has been started on approximately 150,000 homes under FHA inspection, about 85 per cent of them in areas where housing is badly needed by defense workers.

"For the FHA to withdraw from the field with conditions as they are today," he said, "would be to throw the gates wide open to unrestrained speculation, inflated values, and possibly usurious interest rates."

Under the Steagall bill, the President would have the power to increase the mortgage insurance limit by proclamation to $5,000,000,000 from the existing $4,000,000,000.

## Guest Editorial—by Donald H. McNeal

**Appraisal and Reconditioning Expert, Home Owners' Loan Corp.**

IN comfort, convenience and all-round "livability" the buyer of the 1941 home gets at least 25 per cent more in value than his older brother could obtain back in 1926. Increased attention to the needs of the household and technical improvements in the building industry largely account for this evolution.

Out of the laboratories of the building industry have come many new developments undreamed of in the early 'twenties for families of small means. These embrace such varied elements of the whole house as automatic heating systems with concealed radiation, air conditioning, fire resistant materials and wider use of weatherstripping and waterproofing; improved insulation to cut down fuel bills in winter, to avoid excessive warmth in summer and to control sound; and the introduction of new synthetics. More and conveniently located outlets for electricity are built in so that the family can use all the new accessories for the home.

Advances have been made in the applicability to home construction of plywood, plastics, glass brick, gypsum board, chromium plating, quick-drying paints and other newer materials. Acid-resisting glazes have been perfected for bathrooms and sinks. New manufacturing methods have improved the quality of window glass.

Figures maintained by the Bureau of Labor Statistics show that wholesale prices of building materials are almost exactly the same as in 1926 despite the fact that the building supplies dollar is now spent on specialized materials that are much more suitable for their use than those of the past. Modern manufacturing ingenuity and mass production, further, have given us low cost units such as door frames, windows, kitchen cabinets and other assemblies for ready installation on the building job. Other products come in pre-cut sizes for quick assembly.

What attracts the person who wants individuality in the exterior of his home is that now he can obtain a distinction of design, setting his home apart from others in the block without a penalty of great added expense. At the same time basic floor plans of various types are becoming standardized, keeping the cost down. Because of automatic heating, the basement of today is easily kept free of dust and grime. The space is light and airy and can serve many useful purposes for which the old basement was not fitted.

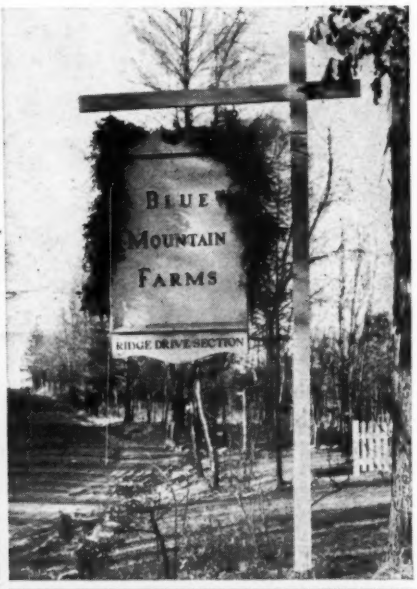
The architect, the engineer, the chemist, the inventor, the building contractor, the manufacturer, and trade associations, the testing and building codes experts—all have contributed to this advancement in the American home.

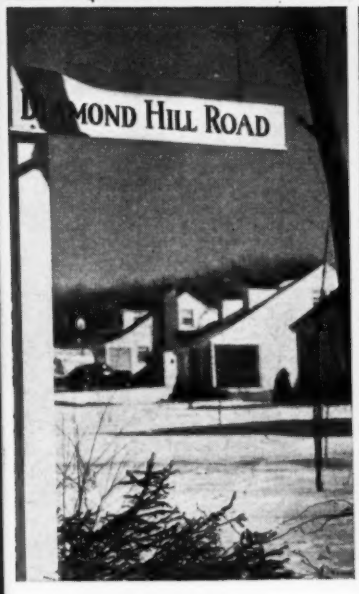
EACH LOT on this street is specially laid out for a specially designed house.

BRAILLARD, builder (left) Schmidlin, architect (right)

# Blue Mountain Farms—

**A complete, candid account of land planning, production methods and merchandising ideas of Braillard and Friedrichs, who believe "those at the top always produce a quality line."**



"THERE'S an easy way and a hard way to run a building development," Frank Braillard told me as we watched the workmen putting the finishing touches on the sixtieth house at Blue Mountain Farms, near Summit, N. J.

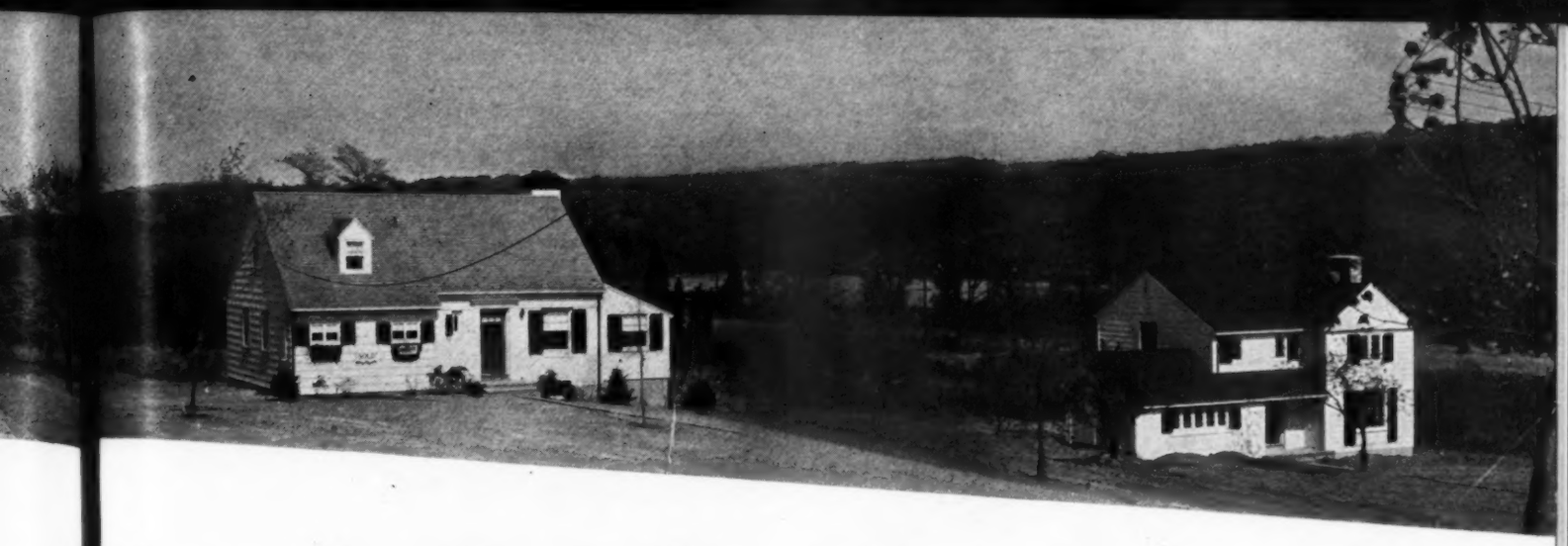
"The easy way is to build and sell on *price* alone, and to rush through the job without serious thought to quality details or land planning.

"Here at Blue Mountain Farms we prefer the *hard way*—and that means taking infinite pains with every item of the job, to plan carefully and build slowly, and to sell at a fair price with a reasonable profit."

That's "the hard way," and at Blue Mountain Farms it has won out. In a little over two years some 50 houses in the $7500 to $9500 price range have been built and sold and an additional group of 20 are now nearing completion. They have all been sold on the basis of an appeal to buyers interested in quality construction. So outstanding is the job of land planning, design and quality methods employed that *American Builder* asked F. B. Braillard, president, and H. Clay Friedrichs, secretary and treasurer, to permit a detailed study of their operations to be reported here for the benefit of the building industry. For this is the kind of home building community that makes friends for the industry and keeps them.

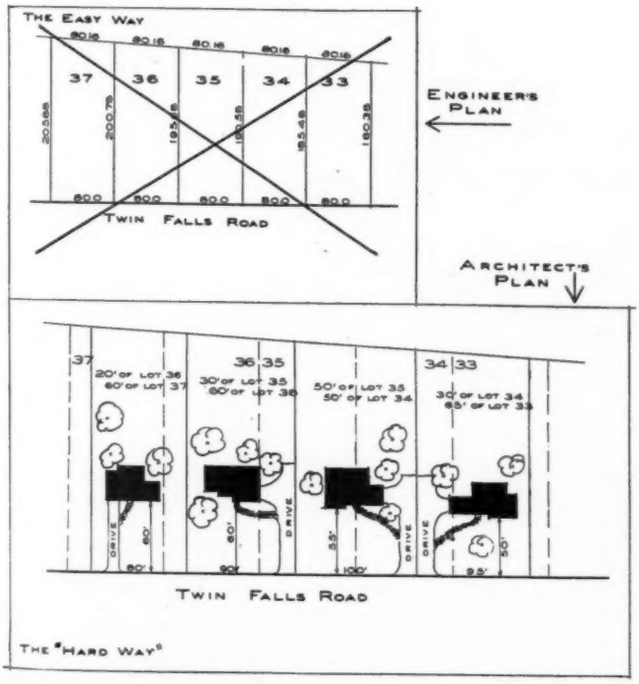
A striking example of "the hard way" employed by Braillard and Friedrichs is the fashion in which the last group of 20 houses has been planned and laid out as a *group*. An entire street, both sides, was laid out at once, with each lot a different size depending on the requirements of the house.

The easy way would have been to use the engineer's lot map which had been made for legal purposes, in which the street was laid out in a straight row of 80-foot parcels. But Braillard felt that this would have given a monotony of design and was not an intelligent approach. He asked McMurray & Schmidlin, prominent residential architects



# Where "the Hard Way" Won Out

*By Joseph B. Mason*



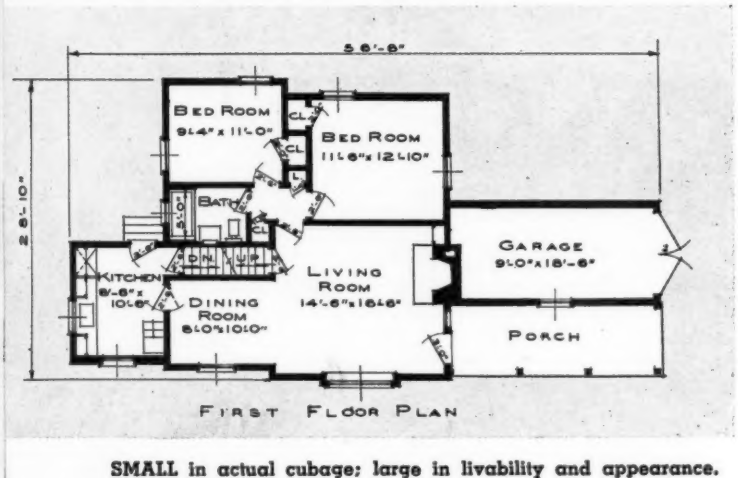

**ENGINEER'S PLAN with uniform 80' lots was abandoned in favor of a carefully studied architect's layout, with each lot a different size to fit each house. TruCost figures appear on page 143.**

**AT RIGHT—Three of the latest Blue Mountain Farms homes designed by Architects McMurray & Schmidlin, with windows and porches planned to take best advantage of the view, sun and air.**

who have designed all of their houses previously, to work out a proper plan for the entire street.

Flat scale models or templets of 20 houses were made and were placed upon a new lot map with the engineer's lot lines removed. Then the relation of each house to the other was studied. One house might work poorly next to another and it would be shifted around. As the models were studied and moved to different positions it became apparent that each required a different-sized lot. A long rambling type of house required a 100-foot front. Next

**GARAGE WING adds length and size to this Blue Mountain home dominated by a picture window.**




**SMALL in actual cubage; large in livability and appearance.**

**BRAILLARD SAYS:**

**"Price buying means price selling, and both are incompatible with true value.**

**"Good material and labor cannot be bought for other than a fair price.**

**"The best materials and best skills can't be bought for the least money.**

**"We fit each lot to the house rather than making the house fit a standardized lot.**

**"If a buyer gets a lemon of a car, he can take a small loss and get out. But with a house, it's the buyer's baby from then on. IT'S THE LAST THING IN THE WORLD THAT SHOULD BE BOUGHT ON PRICE."**

**INTERESTING metal work and window details feature this very recent McMurray & Schmidlin design at Blue Mountain Farms.**

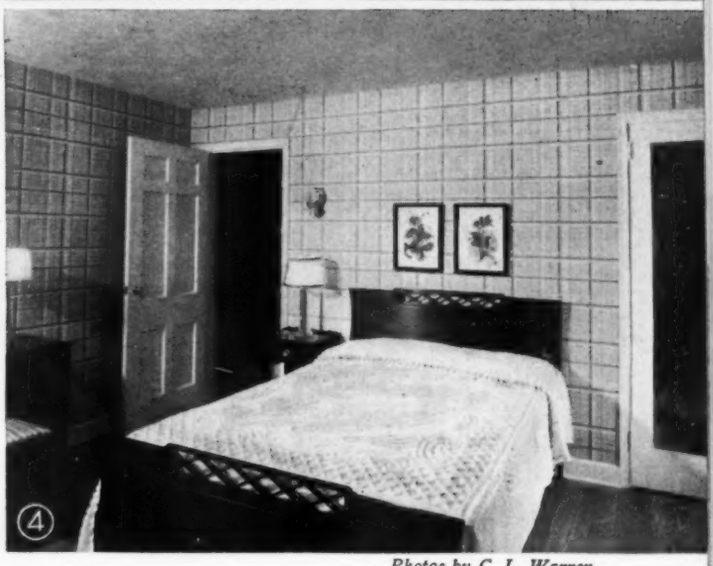
to it a squarish New England type with garage facing the street could fit nicely on a much smaller piece. Some houses required a wider driveway or more turn around space than others, and this was provided for.

In other words, instead of houses being arbitrarily placed on existing lots, *the lots were made to fit carefully planned houses.*

It might be explained that the builders, in consultation with McMurray & Schmidlin, had pretty well determined through previous experience the kinds of houses that would appeal to various classes of buyers. These houses were designed first.

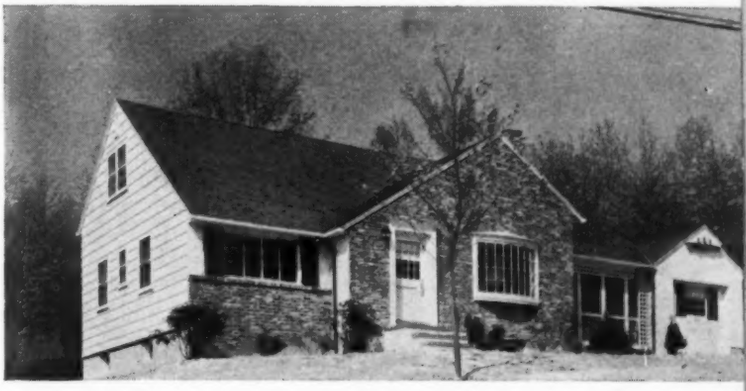
Another result of this form of planning was the abandoning of a standard set-back such as the engineer's plot plan called for. Another important step was to go over each house plan and check it to see whether its porch faced the wooded slopes of the nearby Watchung Mountains and to plan the porches so that no two looked out upon each other. In addition, the living and dining rooms of the various houses were checked to see that the large picture windows looked out on the attractive mountainside view.

The net result of this type of planning is an interesting street with character and beauty and a group of houses laid out so that each is a well-planned part of a well planned whole. Architects McMurray & Schmidlin, whose offices are at Union, N. J., have done a splendid job of planning the individual houses as well as laying out the entire project.



*Photos by C. L. Warren*

**BLUE MOUNTAIN INTERIORS of unusual charm, featuring: (1) $2 a roll wallpaper in dining room; (2) corner fireplace in living room seen through arched opening; (3) kitchen with H & L hinges and radio; (4) master bedroom with full-length mirror door, modern wallpaper, neatly detailed trim and good wall space for furniture.**



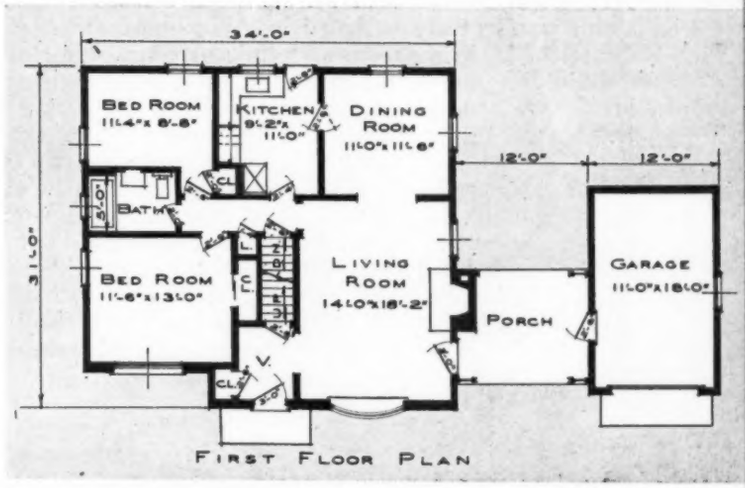
Braillard and Friedrichs have a strong, stubborn theory about quality work. They regard themselves as business men of as high a calibre as in any leading, large scale business. As Braillard put it, "We looked critically at the top concerns in other lines of business and their products. *Without exception, they all produced a quality article, whether it was automobiles, refrigerators, socks or fishing tackle.*

"When we looked around the building field we found far too many operators solely concerned with price alone. We think that is wrong!

"Years of experience have taught that the best materials and the best skills cannot be bought for the cheapest price. Price competition has always cut in on the quality producer's business, but the price cutter never reaches the top in any line of business. We want to be at the top."

As a result of this theory of quality operation, Braillard, who is in charge of planning and construction operations, has developed an almost fanatical interest in the multitudinous but important details that go to make up a well built house. He keeps constantly stressing the importance of low service and upkeep costs after the house has been lived in a while. His subcontractors are men who stand back of their jobs; qualified local firms who can continue to service the job for many years. One typical illustration is his subcontractor who installs

*(Continued to page 137)*




**CIRCULAR BAY WINDOW features long, low design. There is space for extra bedroom and bath upstairs to make it 6-room size.**

**DETROIT home of five rooms features use of lumber both inside and out, with many extra built-ins. Milo F. Gonser, the designer and builder.**

# Planning and Building a "Big" Small House

## Milo F. Gonser, Detroit Builder, Shows How Added Convenience Can Be Given Five-Room House Without Extra Cubage

ALTHOUGH disastrous results usually accompany the "paring down" process in small home building —those cases in which a champagne house plan is fitted to a beer pocketbook—proof that plenty of planning thought can give remarkable results is evident in this example of modern livability within a comparatively small floor area.

To quote the builder, Milo F. Gonser, of Detroit, Mich., "In planning this house, we desired the privacy of the various sections of the larger homes. We took a plan that cost about $18,000 to build and cut it down to about $8,000. This took a lot of rearranging but each and every main idea of the more expensive home is incorporated in some manner or other. This plan, as indicated at the right, is essentially designed in three units as follows: Unit No. 1—living room and dining room; Unit No. 2 —bedrooms and bath; and Unit No. 3—kitchen and breakfast room. These units are combined with a central hall having a door at each end. By closing both of these doors, the house is separated into three private sections."

The exterior illustrated above is straightforward Colonial adaptation which, while kept reasonably plain, has good lines. The living room projection features the main window with full length blinds. Wide beveled siding is relieved by boards and battens in the front gable, and by vertical boards within the entrance porch, which also has an attractive carriage type entrance light and weather-proof electrical outlet. Asphalt shingles were used on the roof.

A pictorial tour of the interior, as shown in the views on the following pages, displays many well planned features and details, as well as the use of quality products. As one enters the front door the vestibule is enlarged, making a small reception hall, with an alcove for a console table and mirror. This alcove replaces the powder room in the more expensive house, and contains ample space to receive four guests at a time. It provides a place

**WITHIN a 36 by 43 foot over-all, to be nicely accommodated on a 50-foot city lot, this floor plan offers many extras not usually found in this size house—circulation, storage and separation of areas.**

for the ladies to check their appearance when they leave the house. This makes a unique, if not spacious, reception hall.

Going from the entrance to the living room and dining room, one finds the hominess and informality of a knotty pine library and a living room combined. This is accomplished by building bookshelves completely across the front of the living room and around the large picture window. At the end of the room there is an open fireplace with a natural wood mantel. To the right is the dining alcove with a knotty pine beam in the ceiling to show the separation from the living room. The dining alcove is wainscoted thirty inches high with knotty pine, and the same wallpaper is used in both rooms.

Off the dining room and connected with a pair of cottage type doors, there is a sun room finished off complete-

*Photos by Barton Studios*

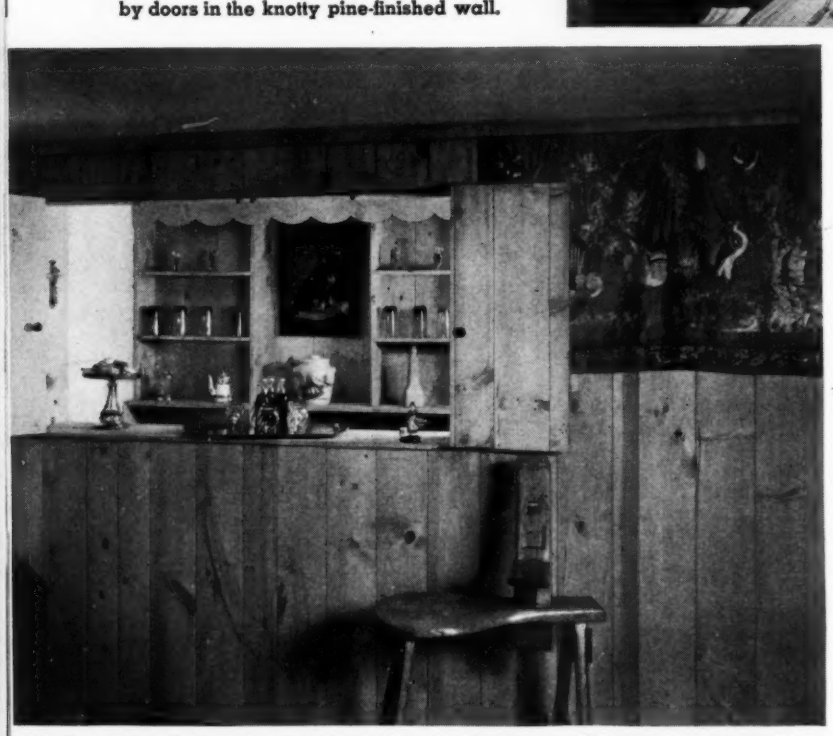
**THE living end of this room, as shown at the right, has knotty pine bookcases and cupboards surrounding the front window. This harmonizes nicely with the Colonial mantel. Notice the slightly coved ceiling treatment above the picture mould.**

**THE view of the opposite side of this combination room displays the dining alcove separated by knotty pine beam at the ceiling; wainscoting and trim are in the same finish. The door set across the corner leads to kitchen and rear hall.**

## Interesting Details for Breakfast Nook, Recreation Room and Kitchen Done in Knotty Pine Milo F. Gonser, Builder

**ABOVE: Cheerful pattern in the wallpaper combines with pine cupboards to make a delightful breakfast spot in this well lighted nook of Detroit house built by Milo F. Gonser.**

**BELOW: The bar in the recreation room can be closed off from balance of room by doors in the knotty pine-finished wall.**



**IN the kitchen, the cabinet work of Western pine boards used for the doors has been V-grooved to carry out the interior design of the other rooms. Notice the knee-room under tile top for planning space and spot for garbage can.**

ly with knotty pine, including the ceiling. This room can be made into an open air porch simply by rolling the sash sideways or by lifting them completely out. These sash are weatherstripped, and the sun room can be heated, Facing east, this room gets the warmth and color of the morning sun.

Leaving the sun room and dining room, one enters the kitchen, in which cupboard space abounds. Special racks and shelves are convenient novelties for the lady of the house. The cupboard doors are V-grooved, carrying out the early American style.

In the back of the kitchen is the breakfast nook, done in knotty pine; the wallpaper is an attractive creation with red berries and green leaves.

The master bedroom has twin wardrobe closets with a vanity alcove between. In the husband's closet are a shirt drawer and a shoe rack, and in the wife's closet a shoe shelf and dress and hat racks. In the center hall, just off the bath, are linen lockers and blanket drawers. A Bessler disappearing stairway serves a lighted attic.

The bath is done in grey tile with a yellow feature stripe and yellow wallpaper. The shower is built in and has a glass door.

As one descends the basement stairs, one enters a small hall. To the right is the combined laundry and furnace room, and to the left is the recreation room and bar. This also is done in knotty pine with folding doors for the bar.

Thus, Milo F. Gonser, builder of "owner planned homes," has demonstrated the extra livability which can be planned into a less expensive house through multi-purpose use of space and economy of area where extra cubage is not essential in a small family house.

# What Price Houses?

## Analysis by U. S. Dept. of Labor Throws New Light on Important Question

IN the April *American Builder* (page 138) an estimate for single family houses for 1941 by price classifications was presented. These figures were based on the FHA analysis of its new home building operations in 1939, covering 115,500 new homes or about 25 per cent of the total number of new homes built that year. The percentages for the several price groupings were applied against *American Builder's* estimate for the number of single family houses to be built this year (480,000) to obtain an estimated number to be built in each price class.

The Bureau of Labor Statistics of the Dept. of Labor, Washington, D. C., has recently completed a study of building permits according to valuation. This study is on a much broader basis than the FHA analysis referred to, since it covers 56 per cent of all of the single family houses built in the three years 1936, 1937 and 1938. These houses were built in 361 cities of which 14 were of half million population and over; 79 were 100,000 to 500,000; 95 were 50,000 to 100,000; and 173 were 25,000 to 50,000.

The total number of one family dwellings for which permits were issued in these 361 cities was 248,447 out of a total estimated single-family house volume for those three years of 442,518, or 56 per cent.

The accompanying table (Table 5) is reproduced directly from the government report and gives an extremely

*(Continued to page 136)*

### Table A.—Estimate for 1941

**Number of 1-Family Houses to be Built This Year Arranged by Price Classes**

| *Permit Valuation* | *Per cent* | *Number* |
|---|---|---|
| All price classes | 100 | 480,000 |
| $25,000 and over | 0.2 | 960 |
| $15,000 to $25,000 | 0.65 | 3,120 |
| $10,000 to $15,000 | 2.2 | 10,560 |
| $ 8,000 to $10,000 | 3.1 | 14,880 |
| $ 6,000 to $ 8,000 | 10.0 | 48,000 |
| $ 5,000 to $ 6,000 | 12.7 | 61,030 |
| $ 4,000 to $ 5,000 | 19.4 | 93,120 |
| $ 3,000 to $ 4,000 | 22.8 | 108,440 |
| $ 2,000 to $ 3,000 | 14.6 | 70,080 |
| Less than $2,000 | 14.35 | 68,880 |

### TABLE 5.—*Family-Dwelling Units in 1-Family Structures for Which Building Permits Were Issued in 361 Cities, 1936 to 1938, by Permit Valuation and Size of City*

| Permit valuation per family-dwelling unit | Total (361 cities) | | 500,000 and over (14 cities) | | 100,000 and under 500,000 (79 cities) | | 50,000 and under 100,000 (95 cities) | | 25,000 and under 50,000 (173 cities) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| All valuations [1] | 248,447 | 100.0 | 93,732 | 100.0 | 79,139 | 100.0 | 36,047 | 100.0 | 39,529 | 100.0 |
| $25,000 and over | 543 | .2 | 161 | .2 | 123 | .2 | 63 | .2 | 196 | .5 |
| $22,500–$25,000 | 96 | (2) | 15 | (2) | 25 | (2) | 18 | (2) | 38 | .1 |
| $20,000–$22,500 | 335 | .1 | 90 | .1 | 87 | .1 | 61 | .2 | 97 | .2 |
| $17,500–$20,000 | 352 | .1 | 86 | .1 | 96 | .1 | 65 | .2 | 105 | .3 |
| $15,000–$17,500 | 1,016 | .4 | 282 | .3 | 304 | .4 | 209 | .6 | 221 | .5 |
| $12,500–$15,000 | 1,272 | .5 | 329 | .4 | 397 | .5 | 247 | .7 | 299 | .8 |
| $10,000–$12,500 | 4,317 | 1.7 | 1,444 | 1.5 | 1,243 | 1.6 | 827 | 2.3 | 803 | 2.0 |
| $9,500–$10,000 | 977 | .4 | 279 | .3 | 312 | .4 | 194 | .5 | 192 | .5 |
| $9,000–$9,500 | 1,787 | .7 | 654 | .7 | 555 | .7 | 311 | .9 | 267 | .7 |
| $8,500–$9,000 | 1,411 | .6 | 493 | .5 | 439 | .5 | 252 | .7 | 227 | .6 |
| $8,000–$8,500 | 3,381 | 1.4 | 1,189 | 1.3 | 1,027 | 1.3 | 562 | 1.5 | 603 | 1.5 |
| $7,500–$8,000 | 3,219 | 1.3 | 1,136 | 1.2 | 1,086 | 1.4 | 493 | 1.4 | 504 | 1.3 |
| $7,000–$7,500 | 4,907 | 2.0 | 1,836 | 2.0 | 1,598 | 2.0 | 822 | 2.3 | 651 | 1.7 |
| $6,500–$7,000 | 5,088 | 2.1 | 2,043 | 2.2 | 1,498 | 1.9 | 826 | 2.3 | 721 | 1.8 |
| $6,000–$6,500 | 11,490 | 4.6 | 5,615 | 6.0 | 2,983 | 3.8 | 1,609 | 4.5 | 1,283 | 3.2 |
| $5,500–$6,000 | 9,392 | 3.8 | 4,467 | 4.8 | 2,520 | 3.2 | 1,330 | 3.7 | 1,075 | 2.7 |
| $5,000–$5,500 | 22,104 | 8.9 | 10,474 | 11.2 | 6,390 | 8.1 | 2,536 | 7.0 | 2,704 | 6.8 |
| $4,500–$5,000 | 18,668 | 7.5 | 7,870 | 8.4 | 5,675 | 7.2 | 2,519 | 7.0 | 2,604 | 6.6 |
| $4,000–$4,500 | 29,679 | 11.9 | 14,572 | 15.5 | 7,509 | 9.5 | 3,485 | 9.7 | 4,113 | 10.4 |
| $3,500–$4,000 | 27,801 | 11.2 | 12,392 | 13.2 | 7,773 | 9.8 | 3,440 | 9.5 | 4,196 | 10.6 |
| $3,000–$3,500 | 28,757 | 11.6 | 12,282 | 13.1 | 8,300 | 10.5 | 3,682 | 10.2 | 4,493 | 11.4 |
| $2,500–$3,000 | 20,012 | 8.1 | 6,039 | 6.4 | 7,234 | 9.1 | 2,960 | 8.2 | 3,779 | 9.6 |
| $2,000–$2,500 | 16,085 | 6.5 | 3,640 | 3.9 | 6,602 | 8.3 | 2,686 | 7.4 | 3,157 | 8.0 |
| $1,500–$2,000 | 12,600 | 5.1 | 2,345 | 2.5 | 5,447 | 6.9 | 2,379 | 6.6 | 2,429 | 6.1 |
| $1,000–$1,500 | 11,773 | 4.7 | 2,194 | 2.3 | 5,219 | 6.6 | 2,062 | 5.7 | 2,298 | 5.8 |
| $500–$1,000 | 11,385 | 4.6 | 1,805 | 1.9 | 4,697 | 5.9 | 2,409 | 6.7 | 2,474 | 6.3 |
| Under $500 [1] | 7,190 | ------ | 334 | ------ | 2,076 | ------ | 1,470 | ------ | 3,310 | ------ |

[1] Units under $500 are not included in totals.
[2] Less than a tenth of 1 percent.

PRICE DATA from Bulletin No. R. 1225, U.S. Bureau of Labor Statistics.

**VIEW "A"—Picture windows dominate apartments at end of well landscaped court. Benson Eschenbach, architect.**

# Country Gardens at Rye

**New two-story duplex apartments look like attached private homes around court.**

**Gross annual income of $15,000 expected from $77,000 investment**

A SKILLED architect and an expert builder were responsible for this new garden apartment project at Rye, N. Y., which has attracted wide attention because of its homelike nature.

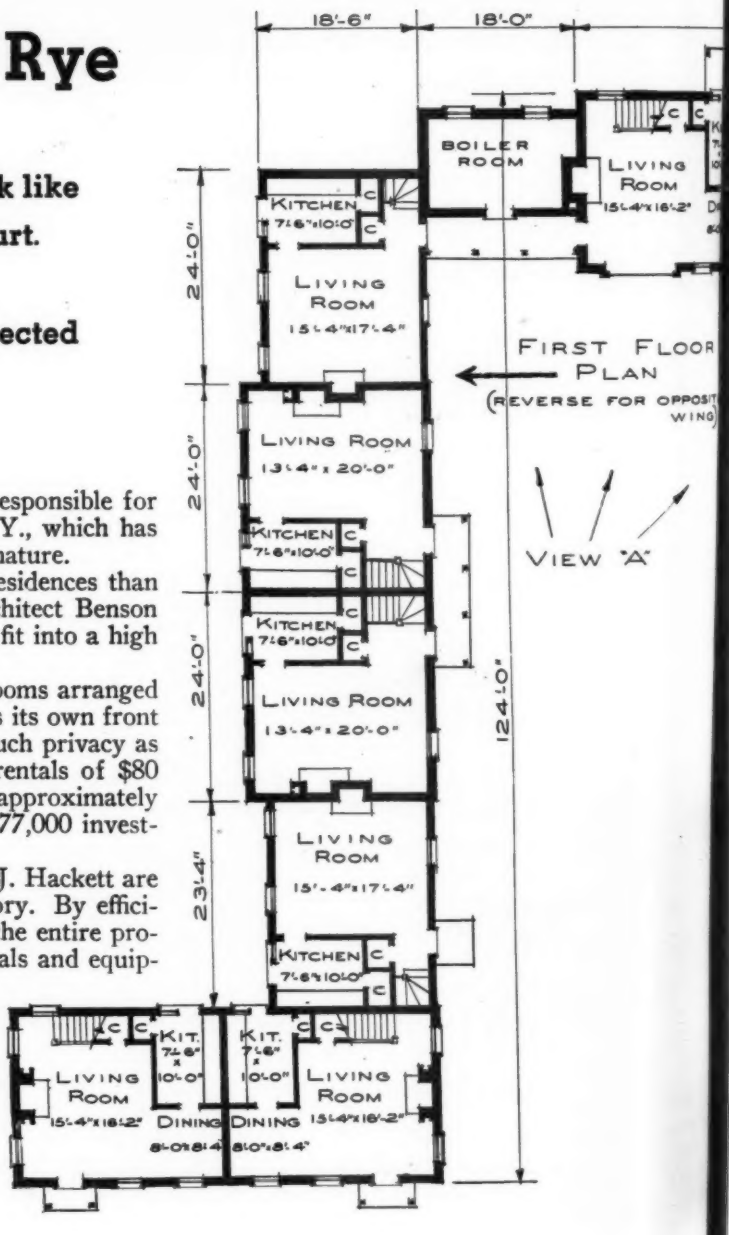
The buildings look more like fine attached private residences than apartments. In fact, it was a primary purpose of Architect Benson Eschenbach of Scarsdale, N. Y., to make the buildings fit into a high grade residential community.

There are 14 duplex apartments of 3½, 4 and 4½ rooms arranged around a large court on a three-acre site. Each unit has its own front and rear door, upper and lower floors and almost as much privacy as a private home—without the upkeep headaches. The rentals of $80 to $100 a month will bring in a gross annual income of approximately $15,000, which should prove an ample return on the $77,000 investment.

Both Architect Eschenbach and Contractor Wintour J. Hackett are men of wide experience in suburban New York territory. By efficiently organizing the job Hackett was able to complete the entire project in five months' working time. He employed materials and equipment that would insure low upkeep, including Bangor slate, Creo-Dipt shakes, Air-Met metalated insulation, Curtis woodwork and trim, Standard fixtures, Fitzgibbons boilers, Bell & Gossett circulators, Corbin hardware.

Floor plans and room arrangement of the Country Garden apartments are unusually good. As detailed in the accompanying plan, the two wings have an identical arrangement, except that

*(Continued to page 142)*

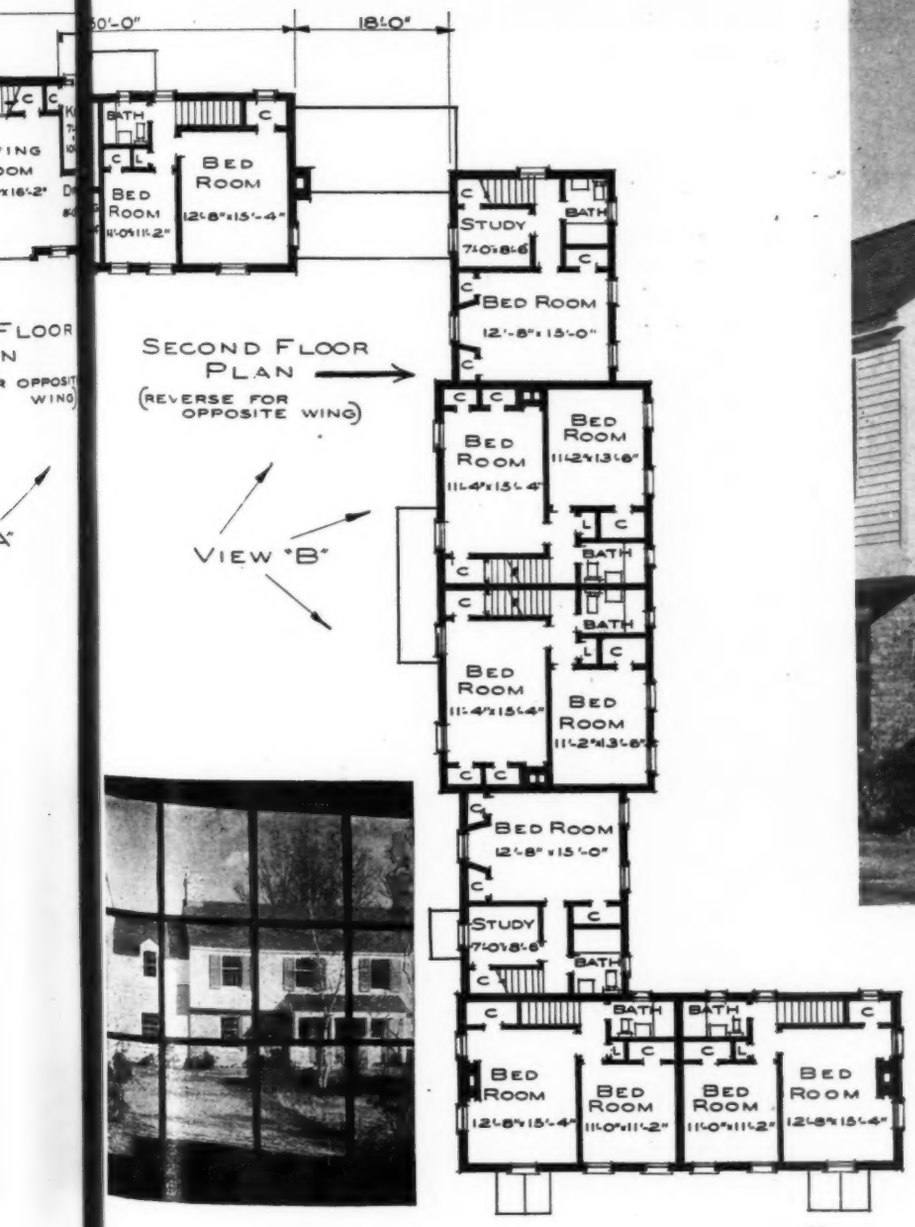


VIEW "B"—Entrance at side of court. See plan below.

*Photos by R. E. Leppert, Jr.*

## *By G. Harris Danzberger*

**PENNSYLVANIA** Colonial architecture gives apartments homelike air. Second-hand brick, hand-split shakes and Colonial siding are used.



**INVITING** Colonial entrance suggests home. Floor plan shows arrangement of 14 duplex units around spacious court. Units consist of 3½, 4 and 4½ rooms. First and second floor plans shown reversed for opposite wings.

# Blanket Insulation for Attics

## Recommendations for Insulating and Ventilating Attic Space for Reducing Winter Heat Loss, Summer Cooling and Control of Condensation

*By D. B. Anderson*
Manager Sales Engineering Department, Wood Conversion Company

BLANKET type insulation installed in the attic will reduce costly heat loss through the ceiling and roof during the heating season and will effect cooler, more comfortable living quarters during the hot summer months. The greatest effectiveness of the insulation can be assured by (1) proper installation, in order that the insulation will function properly both winter and summer, and (2) sufficient ventilation of the attic space between insulation and roof for increased efficiency, particularly during the summer season.

A few advantages of attic insulation may be enumerated as follows:

1. Attic insulation effects appreciable fuel savings and increased comfort during the heating season.
2. With attic insulation the entire house can be made cooler and more comfortable during the summer months.
3. Insulation of the ceiling and roof construction is very effective because of the higher temperature at the ceiling line during the heating season, due to the fact that warm air has a tendency to rise. In an uninsulated house, this temperature gradient from floor to ceiling may be as high as 15 degrees. This effects a greater temperature difference between the air at ceiling and outside, and a resulting higher heat loss through walls.
4. Attic insulation increases the temperature of the ceiling surface during the heating season more nearly to that of the room air temperature; therefore drafts are reduced and excessive loss of radiated heat from occupants to cold ceiling surface is reduced.
5. Uninsulated ceilings and roofs of ordinary construction offer in themselves little resistance to passage of heat.
6. Many factors that contribute to excessive transfer of heat through roofs are not reckoned with in theoretical calculation —for instance, poor and open construction at the eaves.
7. The attic space is usually accessible for the easy installation of insulation.
8. The attic offers the largest unbroken areas for insulation, therefore lowest application cost per square foot.
9. Attic insulation yields larger returns on dollar invested.
10. Attic insulation enhances the property value.

The serious consequences of poorly insulated attics have been clearly demonstrated by the many failures that have been experienced through the use of improperly protected and carelessly applied materials. Even if the product is correctly designed and protected, full effectiveness as attic insulation can be obtained only if the material is applied correctly and placed properly with respect to heated and unheated spaces, and if adequate ventilation of the space between insulation and roof is provided.

Application of several blanket type insulations has been simplified with the flanged edges which are easily attached to framing members with nails or staples. It is natural for the applicator to lap the flanges over the framing members and tack them in place. The flanges are so designed that air spaces are created automatically on both sides of the insulation. Correct application of the edges of the insulation is, therefore, not so much of a problem. Oftentimes, however, the ends of the strips of the insulation are carelessly applied—perhaps they are not attached properly to the plate or cross header, and in some instances may even fall short of reaching that member. Proper attachment of these turnouts is very important. This fact has been emphasized in several instances where the ends were left to hang without fastening and frost had accumulated in the cold space behind. The loss in efficiency of the insulation, both winter and summer, with poor application is not so apparent, but nevertheless a fact. Tests at the University of Minnesota have indicated that where the ends of the strips of insulation are not fit closely to the bottom and top plates in wall construction, the heat loss increases about 50 per cent.

Proper placement of the insulation with respect to the heated and unheated spaces is also important. Best positions are illustrated in the sketches herewith. A simple rule for correct placement is to install the insulation in the construction which encloses the heated space; in other words, the heated space should be completely "wrapped" with blanket type insulation, making certain that there are no weak, uninsulated areas.

Proper ventilation of the space between insulation

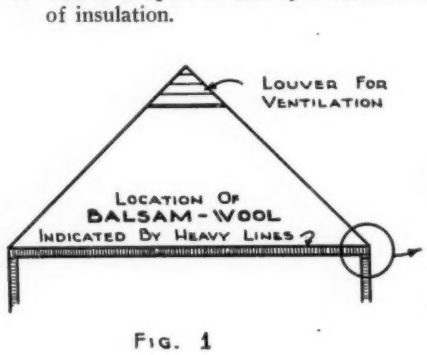


FIG. 1

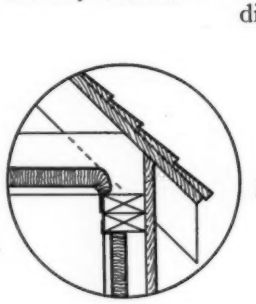


FIG. 1-A

OR

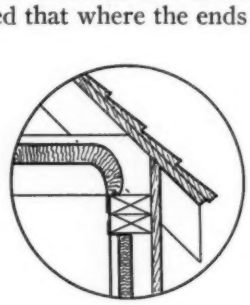


FIG. 1-B

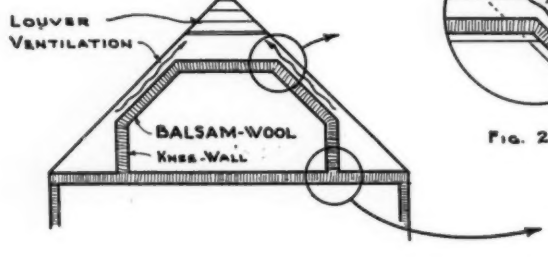


FIG. 2

FIG. 2-A

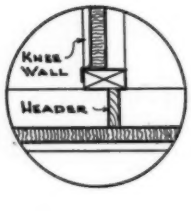


FIG. 2-B

OR

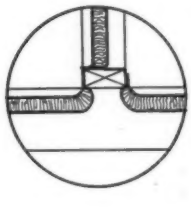


FIG. 2-C

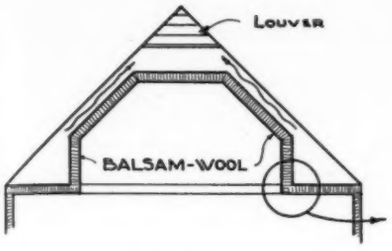



FIG. 3

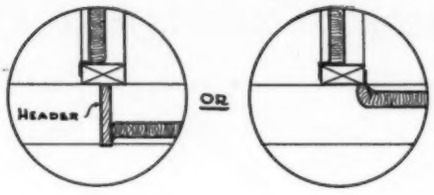



FIG. 3-A FIG. 3-B

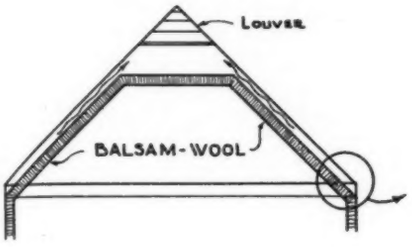



FIG. 4

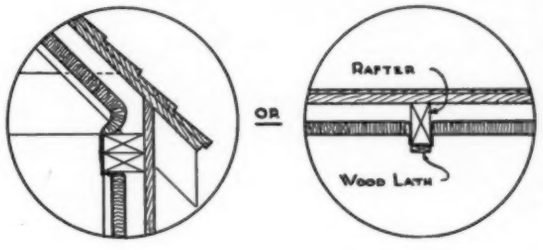



FIG. 4-A FIG. 4-B

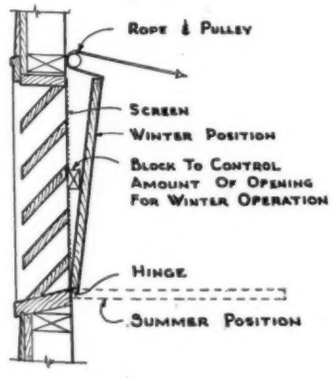
and roof is of equal importance. Ventilation in the summer provides a means of "flushing" out the hot air which accumulates directly under the roof. Roof surface temperatures often reach 150 degrees. If the attic space is unventilated, the attic temperature may reach 130 degrees with an outside air temperature of 95 degrees. This heat is absorbed by the house and the attic becomes an enormous stove, radiating and conducting heat to the rooms below, making living and sleeping quarters extremely uncomfortable. If this hot attic air is replaced with cooler outside air by ventilation, we can expect the attic temperature to be lowered to nearly that of the outside air. The more ventilation that is provided during the summer months, the cooler the attic air becomes. As a matter of fact, the ideal construction for summer operation would be to support the roof on stilts to serve merely as a protection against direct rays of the sun and rain, with the attic open on all sides. A trend toward more complete ventilation is noticeable in the South where certain builders enclose all vertical areas in the attic with louvered openings.

The use of attic fans is becoming more popular, their purpose being to force through the attic space a much greater amount of air than could be handled by natural ventilation through ordinary size louvers. These attic fans are so arranged that outside air is circulated in great volume through the attic space during the daytime. At night, when the outside temperature is 15 to 20 degrees cooler than daytime temperature, grilles or doors between living quarters and attic are opened and the cool night air is drawn in through the living quarters and out through the attic. With attic fan cooling, windows and doors are kept closed during the daytime and if rapid transfer of heat through walls and roof is prevented with insulation, it is possible to hold temperatures within the house appreciably below the outside temperature. While the use of attic fans, particularly in the South, certainly has many advantages, the following discussion is limited to natural methods of ventilation because they are as yet more commonly employed.

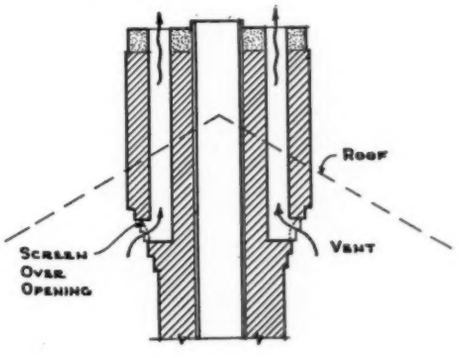
While the maximum amount of attic ventilation should be provided for summer operation, it is desirable to equip the vent openings with doors that can be closed partially or completely during the heating season. A small amount of ventilation is desirable during the winter in order to vent off any moisture vapor that may have passed around the insulation through cracks, around access panels, doors, chimney, vent pipes, etc., and gained entrance into the cold space behind. The exact amount of ventilation depends on several factors and can best be determined after experience with the particular job in question.

Increase in heat loss from the attic, due to the small amount of ventilation required, will not be appreciable. Tests have shown that natural ventilation through openings in each gable end of attic, as large as ⅛ square inch per square foot of ceiling area, increases the heat loss through the roof construction only 5 per cent.

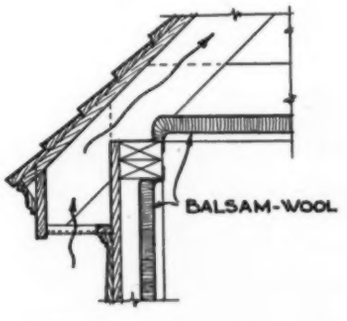
Figures 1, 2, 3 and 4 show four suggested methods of applying blanket type insulation in attics of new or existing homes. Note particularly in all methods that it is recommended that ventilation be provided for the attic space. Application of insulation directly between the entire length of rafters, from cornice to ridge of roof, should be avoided if some ventilation between insulation and roof cannot be provided, particularly where roofing is asphalt shingles, roll roofing, or other material highly resistant to passage of moisture. Door openings and access panels in the insulated areas should be kept closed and, if loose fitting, should be weatherstripped in order to reduce to a minimum the passage of moisture vapor into the cold space between insulation and roof. It is also desirable to insulate such doors and panels—this can be



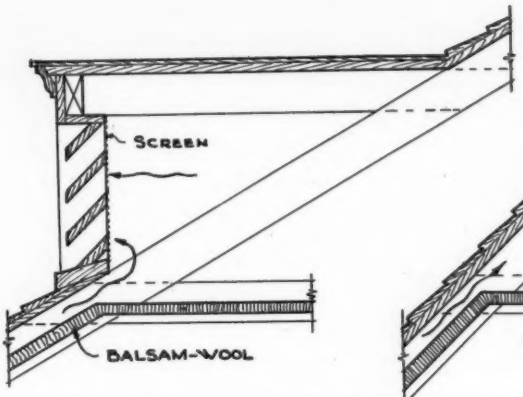

WALL LOUVER
FIG. 5



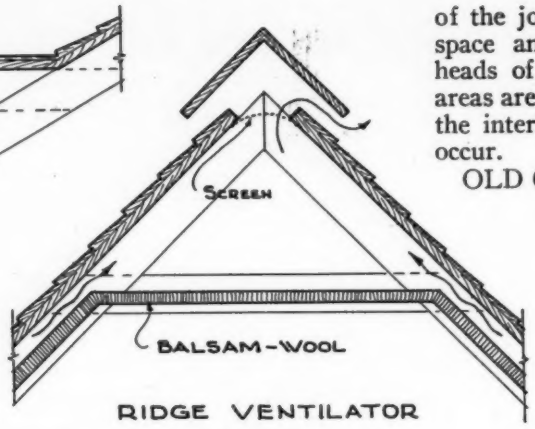

CORBELLED CHIMNEY WITH VENTING FLUES
FIG. 6




SCREENED CORNICE VENTS
FIG. 7




ROOF VENTILATOR
FIG. 8




RIDGE VENTILATOR
FIG. 9

accomplished easily with application of insulating board to unexposed side.

NEW CONSTRUCTION: Apply blanket type insulation between attic floor joists, as in Fig. 1, wherever there is no immediate need for attic space*. If the insulation is of the reversible type (that is, protected both sides with adequate moisture barriers), it may be installed from below or above, as indicated in Figs. 1-a and 1-b. If the blanket insulation is protected on one side only, it should be placed with the barrier toward the heated space—see Fig. 1-a. It is important that whichever placement is used, the ends of the strips of insulation be fastened to the plate as indicated. Application at the top edge of the floor joists is more desirable in colder climates if "dry wall" construction is to be used as interior finish on ceiling below. Application of the insulation to the upper edge of the joists encloses the joist in a warmer space and therefore condensation on the heads of nails (common occurrence where areas are improperly insulated) which fasten the interior finish in place is less likely to occur.

OLD CONSTRUCTION: Place blanket type insulation, as in Fig. 1-b, in old construction whenever attic is unfloored.

NEW CONSTRUCTION: Install blanket type insulation, as in Fig. 2, where attic space is to be used. Where it is necessary to apply insulation directly between the rafters, provide an *unobstructed* opening between insulation and underside of roof for circulation of air, as indicated by arrows, in Figs. 2 and 2-a. Proper construction at intersection of knee wall with floor is indicated in Figs. 2-b and 2-c. Where blanket insulation is applied to lower edge of joists, as in Fig. 2-b, it is important to seal off the joist space directly below the knee wall in order to prevent loss of heat into adjacent cold attic spaces.

OLD CONSTRUCTION: Install blanket type insulation in old construction, as indicated in Fig. 2, if attic is unfloored. If attic is completely floored and insulated and it is impractical to block off the space immediately below the knee wall, add additional insulation in the form of insulating board to the subfloor of the attic room or the floor of the space adjacent to the room before installing the finish floor.

NEW CONSTRUCTION: Blanket type insulation may also be applied, as indicated in Fig. 3, in order to provide attic rooms. It is important that the ends of the strips of insulation between floor joists be sealed thoroughly to either header or plate, as indicated in Figs. 3-a and 3-b. Here again place insulation so as to provide circulation of air, as indicated by arrows.

OLD CONSTRUCTION: Blanket type insulation may be applied, as indicated in Fig. 3, where the attic is unfloored.

NEW OR OLD CONSTRUCTION: If *entire* attic space is to be heated, blanket type insulation may be installed as indicated in Fig. 4. It is very important that ends of insulation be sealed to plate, as indicated in Fig. 4-a. If flanges at the edges of the strips of insulation are not to be sealed to face of rafter with interior finish or plaster base, apply wood lath strips as shown in Fig. 4-b.

Various methods of providing natural ventilation are indicated—the most common method being the use of a wall louver (Fig. 5). The *minimum net* open area of such a louver in *each* gable should be ⅛ to ¼ square inch per square foot of ceiling area. The louver should be placed so as to provide cross ventilation (Figs. 5 thru 11). This type of louver should be equipped with a

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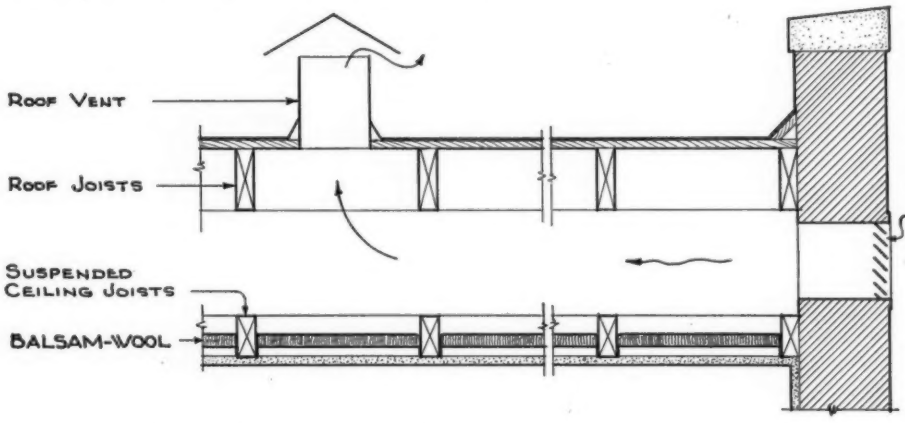
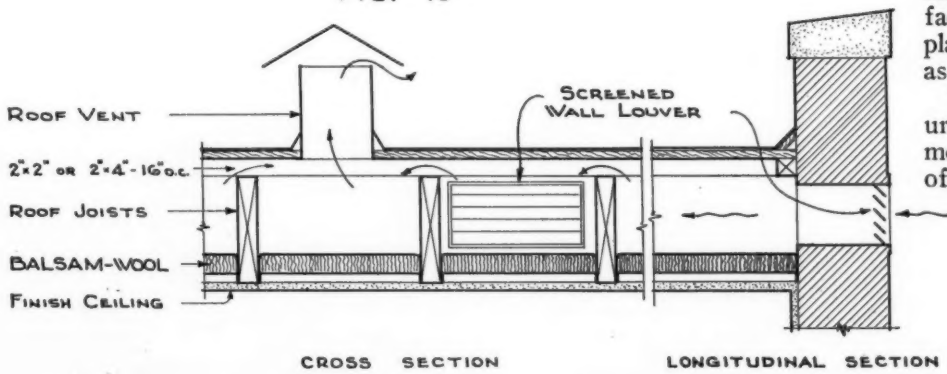
*Should rooms be constructed in the attic at some future date, it is more satisfactory to install the insulation between the wall and ceiling framing members which are erected at that time, as shown in Fig. 2.




VENTILATION OF FLAT ROOF
FIG. 10




VENTILATION OF FLAT ROOF
FIG. 11

# Attic Fan and Furnace Unit Above Ceiling

## Houston, Texas, Home Utilizes Unused Attic Space for Heating and Ventilating Equipment

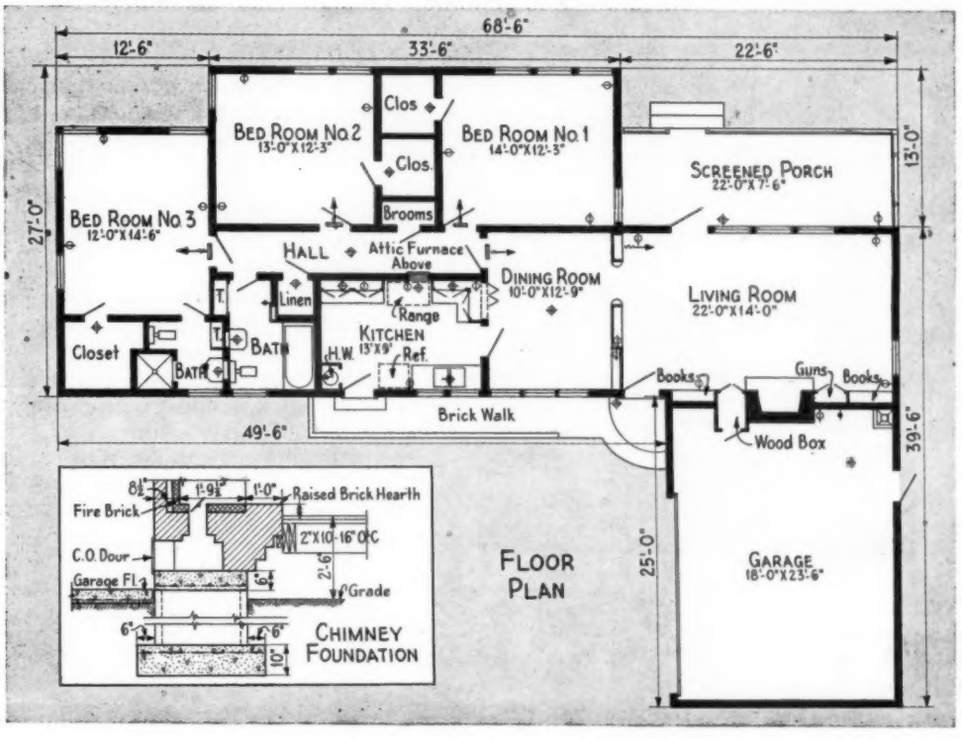
IN TEXAS, it has been increasingly popular to use above-ceiling space for summer ventilating fan installation. In this Houston house, built by Modern Construction Company, a Lennox "Stowaway" gas furnace has been placed above the ceiling in what normally would be unusable attic area. This unit, besides furnishing heat in winter, can be adapted for summer cooling by circulating night air. As indicated in this plan, the supply duct work is compact, upper wall grilles requiring only a short drop from the supply lines.

The house itself is of a rambling, ranch house style with three bedrooms, two baths, kitchen, dining room, living room, large screened porch and two-car attached garage. Closets are of good size; there are plenty of built-in cases for all types of storage, as well as the divisions between the living and dining rooms being built up of shelves.

The foundation is of reinforced concrete beam slab type. Frame walls have siding on the exterior and Textone finish on Sheetrock inside. The built-up roof is surfaced with crushed limestone; Balsam-Wool is used as insulation.

Some of the finished floors are clear white oak; others are carpeted. The kitchen is fully equipped with cabinets and work counters, efficiently arranged. Wood-burning fireplace has a handy fuel box with doors to both living room and garage. Kohler fixtures were used throughout. Richard C. Hoyt and P. H. Wolf, architects.

**THIS floor plan of the house below shows heating ducts off center connecting hall; attic furnace unit is directly above, and requires no masonry chimney or under-floor duct work. Richard C. Hoyt and P. H. Wolf, architects, Houston.**



COMMUNITY CLUB PICNIC at Highland Park helped home owners get acquainted. Red Cross unit is also active.

# "We Manufacture Our Prospects 2 Years Ahead"

**So says N. P. Ninneman, builder of Highland Park near Harrisburg, Pa., who describes budget plan, community club, and volume building sales ideas**

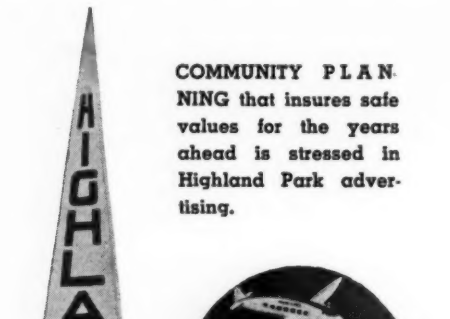
ONE of the fastest growing home communities in Central Pennsylvania is Highland Park, a suburb of Harrisburg, and the human dynamo behind this project is N. P. Ninneman, builder, developer and owner.

Ninneman has made Highland Park hum by a constant succession of smart promotional ideas, by developing a strong community spirit, and by manufacturing his own prospects through his unique home builders' budget plan.

We'll describe the budget plan first because it answers the problem of home buyers with no down payment. Ninneman starts his prospects on the road to home ownership with a payment as low as $10 down and $10 a month. The buyer picks his own lot under this plan and starts making payments right away. When the budget plan is carried to completion the lot is paid for and is accepted by FHA as the necessary down payment. Then construction starts.

Through extensive advertising Ninneman has started many buyers on the road to home ownership by this budget plan, and it has proved highly successful in manufacturing prospects who are truly worthwhile.

Next to the budget plan, perhaps the most striking feature of Highland Park is its strong community spirit. Home owners have organized the Highland Park Community Club for men and an auxiliary Community Club for the ladies. The ladies' group has a women's Red Cross unit, and there are various committees that take an active part in the control and welfare of Highland Park and in its social affairs. The Community Club has an annual picnic which is highly successful, and

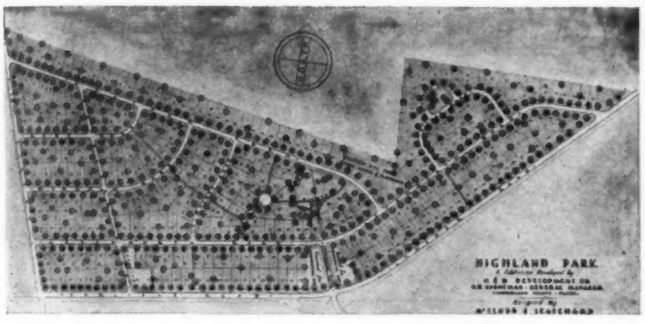



COMMUNITY PLANNING that insures safe values for the years ahead is stressed in Highland Park advertising.

WELL planned street of substantial brick homes in Highland Park shows advantage of well-laid out community.

NINNEMAN'S Highland Park slogan is, "Yesterday, virgin land; today, a thriving modern community; tomorrow, a city that was well planned."

**N. P. NINNEMAN, center, and Leo A. Kirk, FHA district director, receiving plaques from Harrisburg Chamber of Commerce. At right, is Highland Park sales booth where neighbors aid in selling.**



**PLOT PLAN shows winding streets, large super-blocks, ample play space for children. At right, display at Harrisburg annual builders' show describes "the March to Better Living."**

most recently has inaugurated an annual dinner dance.

Even the children have their own branch of the Community Club which acts as a policing organization to see that nothing is done to injure the community, and to keep things clean and attractive.

This community spirit has been fostered by Ninneman, and he has provided a three-acre plot for a park and playground in which is located a shelter house, sand boxes, teeter-totters, open fireplaces, badminton and tennis courts and an all-around community center.

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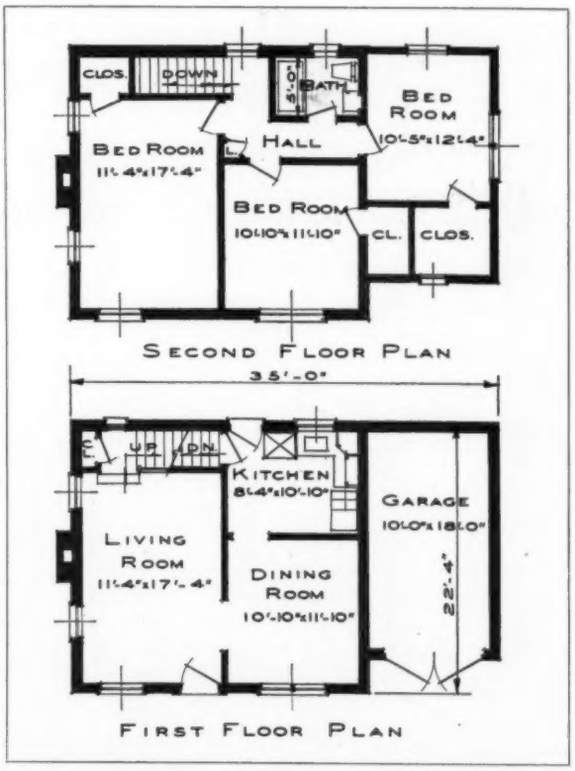



**DOLLY MADISON exhibit home brought out thousands of visitors to Highland Park. Described as "the home designed a year ahead of the times," it was advertised for sale at "only 99 cents a day"; 35' x 22' 4" plan provides 6 good rooms, attached garage. B. E. Starr, architect.**

# Defense Boom in Charleston, S. C.

## L. D. Long puts up Home-O-Meter to show progress of 300 homes in 300 days program

"WATCH THE HOMES GO UP" is inscription on Long's Home-O-Meter.

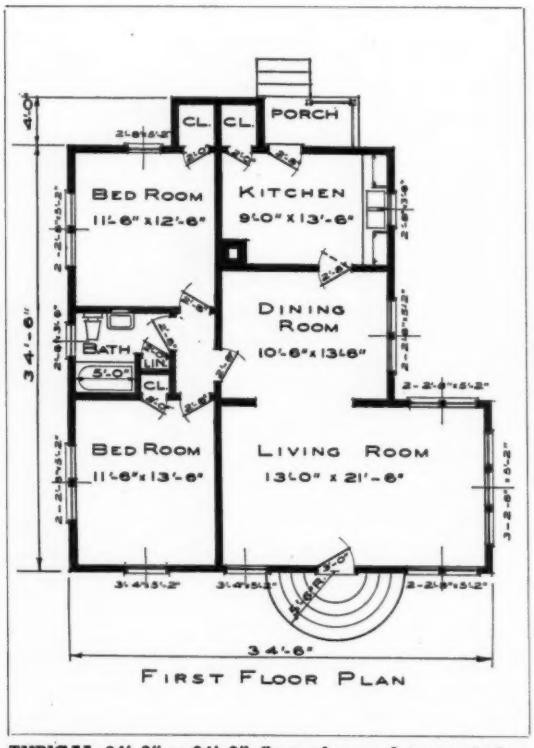
WITH more than 2,000 houses under construction at one time, Charleston, S. C., is definitely one of the spots where national defense has taxed the building industry to capacity. Thousands of civilian workers, as well as Army and Navy employees, added to this comparatively small city (71,000) have made more homes a necessity. These are being provided by both private and public capital.

In the forefront of residential construction is the Long Construction Co., headed by energetic L. D. Long. In addition to a large USHA housing project, Long is building a number of subdivisions of small homes. He set a goal of 300 homes in 300 days. To dramatize the program Long built several 15-foot high "Home-O-Meters" in his Garden Hill project, bearing the legend "Watch the Homes Go Up—300 Homes 300 Days." A big red indicator showed how the program was progressing.

Long came to Charleston at the time of the last war, and at that time built 400 houses for the government in record time. He is now one of the largest building operators in this region and is said to have financed and sold more FHA homes than any other South Carolina builder. He employs 1,000 men in his various operations, does practically no subletting.

Long is a vociferous exponent of private enterprise in home building where action is required, saying there's too much red tape in most government work.

"Where action is wanted the government should turn the work over to reputable contractors and let them build homes that they know from experience are suited to the community. Also, let them use material and equipment they know they can get—not something special that is not only hard to get but unfamiliar to their workmen."




TYPICAL 34' 6" x 34' 6" floor plan and two exteriors of small homes being built by L. D. Long for defense workers in Charleston area. In one of his recent developments, "Nafair," north of Charleston, Long built and completely sold out a 94-home subdivision in 11 months.

# Experimental Short-Length Paneled House

## Forest Products Laboratory Invites Criticism and Test of Novel Method

THE Forest Products Laboratory* has been exploring the possibilities of a shop-made building panel producible from low grade and waste timber. Experiments have been made with a system of employing such a panel in house construction so as to realize low cost with good serviceability and attractive appearance. The system is especially directed toward the employment of men and types of timber that in some areas cannot be fully utilized by present methods. The results to date are indicated in the accompanying photographs. No complete house has been built by this method and no manufacturing tests have been made to determine its practicability or cost. Ways and means of making such tests on a semi-commercial basis are sought, but have not yet been worked out. The basic idea is extremely simple, but this may be a liability instead of an asset if it is assumed that details of construction and workmanship can be disregarded. Successful application is largely dependent upon intelligent regard for important details, especially those relating to moisture and shrinkage control. Hasty trials that do not take advantage of the information and experience that the Laboratory has already accumulated are to be strongly discouraged. Assistance will be given by the Laboratory as freely and fully as possible to those who wish to investigate further.

Emphasis here on important details does not mean that there is but one way to handle the features incorporated in this type of construction. As a matter of fact there are several alternatives and variations and considerable flexibility within the main pattern of the basic system so that what is shown here is really only suggestive rather than a description of the one and only way.

Gradual development of the possibilities rather than general promotion has been looked upon as a wise procedure. A self-contained plant to produce the panels from local material not suitable for standard grades of lumber, especially in connection with the utilization of hardwoods, has seemed a logical application. However, other applications may be as good or better through the manufacture of the individual pieces of the panels as standard sawmill items, especially in the case of softwoods, and shipment to panel-assembly shops near the centers of consumption. Any application to emergency housing projects would probably follow this pattern. Although not intended for temporary or demountable construction, the fact that all parts of the house except the framing and roof are of uniform sized panels which are fastened to the framing with little nailing and no face-nailing means that a building could be disassembled without much damage to the re-use value of the material.

To the individual who might be interested in this method of construction for his own home there is no application at the present time because the panels are not available on the market and the component pieces from which the panels might be made are not standard mill patterns and sizes.

The general aim is to reduce the present high handling costs of using short lengths individually by assembling them into convenient-sized panels under conditions where machinery, conveyors, and jigs can take

* United States Department of Agriculture, Forest Service, Forest Products Laboratory, Madison, Wisconsin, in Cooperation with the University of Wisconsin.

*(Continued to page 131)*

**RIGHT: Placing exterior panels on standard stud frame, 16 inch centers. Panels are 16 x 32 inches. ABOVE: Close-up of panel.**

# Asbestos Siding Profits

## How and Why to Modernize Old Homes

*By J. Harold Hawkins*

THERE are millions of existing frame and stucco houses in need of modernizing. This is particularly true in the present national emergency because of the need to conserve housing and to preserve the investment these old houses represent. Many houses thirty and more years old are substantial structures well worth putting into good shape for many more years of economical occupancy.

Fire protection for national defense is a very important part of the preparedness program we are going through in this country. According to Government statistics and to the National Board of Fire Underwriters, which is the fire prevention laboratory representing two hundred fire insurance companies, a substantial hazard to home fire losses is inflammable coverings on roofs and side walls. Total fire losses for the first three months of this year equal the delivered price of 336 Consolidated B-24, four engine, long range heavy patrol bombers as being built for the U. S. Army. The figure is $84,000,000.

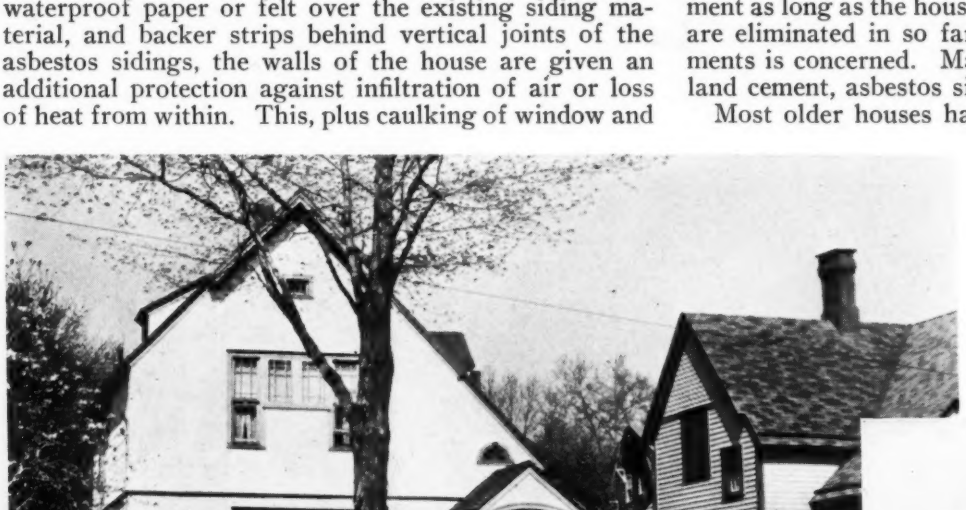
One important answer to this fire loss is the use of asbestos roofing and sidings on rehabilitation jobs. In fact, the re-siding with asbestos, and re-roofing, of these older houses is fast getting into a major position in the total housing field. These jobs are distinctly in the carpenter's field—and it is a profitable field.

An asbestos re-siding job on a house also gives the owner benefits which add up to make such a job profitable to him. Because of the use of bevel stripping and waterproof paper or felt over the existing siding material, and backer strips behind vertical joints of the asbestos sidings, the walls of the house are given an additional protection against infiltration of air or loss of heat from within. This, plus caulking of window and door frames, creates a fuel saving for the home owner which will continue throughout the life of the building.

**FELT BACKER strips are placed behind vertical joints. Wood bevel strips (above) provide smooth nailing surface.**

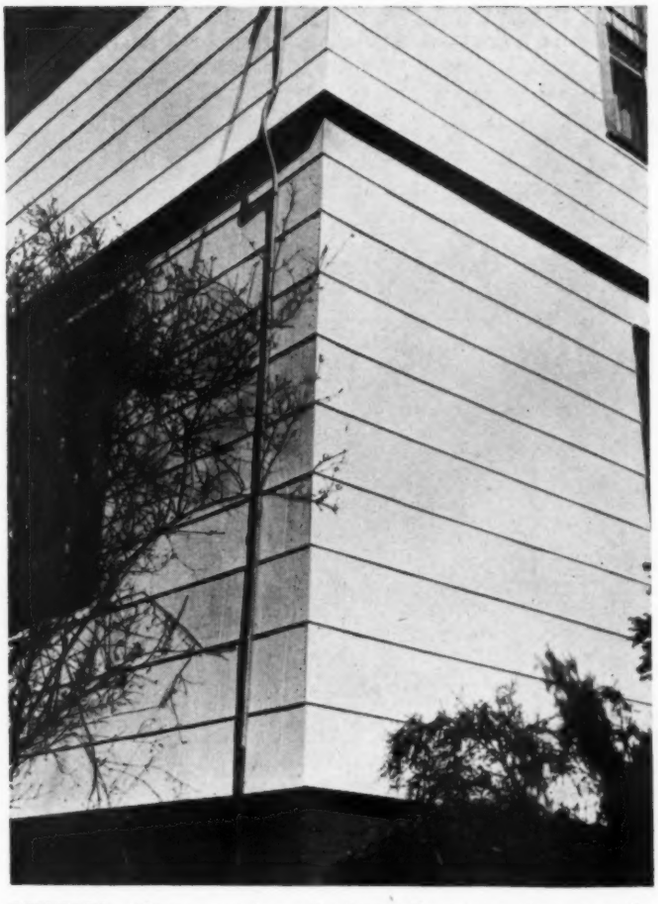
Another benefit results because once the asbestos siding is on, it is there to stay without any surface treatment as long as the house stands. Periodic expenditures are eliminated in so far as protection against the elements is concerned. Made of asbestos fibers and portland cement, asbestos sidings are everlasting.

Most older houses have been neglected to an extent which makes them unsightly and unattractive to buyers or renters. Values have declined so that in many cases the properties have become liabilities rather than assets. Re-siding with asbestos adds a new beauty and attractive-



**RIGHT, example of the millions of frame houses in need of modernization; ABOVE, White asbestos siding transforms the appearance, and enhances re-sale value.**

**ON THIS JOB non-corroding metal corners were used under the asbestos sidings, both outside and inside corners.**



**ASBESTOS sidings are lapped alternately at corners over the metal corner strip used on this job.**

ness which tend to maintain real estate values.

The fire protection which asbestos sidings and shingles give a house is most important. As an example, this spring disastrous fires swept through the Eastern States destroying millions of dollars worth of homes and property. In one locality on Long Island the owners of a home in the path of the on-rushing fire fled like all their neighbors. Returning, they found their home still intact because its asbestos covering defied the fire. Other houses in the neighborhood burned to the ground.

Re-siding with asbestos is rapid and there is nothing difficult about the job. Bevel strips of wood are nailed to the existing siding to fill out the space where the nailing of asbestos siding occurs. Waterproof building paper or slater's felt is tacked over the surface as the courses go up. Asbestos sidings have backer strips behind vertical joints, as shown in the illustration. The backer strips are furnished by the manufacturer of the siding.

A cant strip about ¼" x 2" is usually put at the bottom of the first course, with the asbestos siding overhanging a little to form a drip edge. Asbestos sidings are factory punched for nailing, both top and bottom. Two-inch galvanized needle-point nails are used through the top of the sidings. Nails in asbestos sidings are driven just snug but not driven home. Bottom nails are 1¾" long and are made of a special alloy which will not corrode nor stain. These special nails must be used, and they are furnished along with the siding. They may be poisonous and they ought never to be put into the mouth.

Asbestos sidings are cut for fitting around window and door frames by using a special cutter made for the purpose. This machine cuts quickly and easily in one operation, and also has punchers to make the two different sizes of holes. In some re-siding jobs it may be necessary to apply moulding around frames if the applied siding juts out beyond the casings. Caulking compound should be used at all places where asbestos siding butts against wood trim, masonry or any other materials. It ought to be applied before the siding is butted so as to avoid smearing the surfaces of sidings.

As for corners, there are three general methods used. First, however, there needs to be a backer strip folded vertically around the corner under each course of siding, or a non-staining metal corner either with or without a projecting bead. When using backer strips or a corner metal strip without a bead, the sidings are lapped alter-

*(Continued to page 136)*

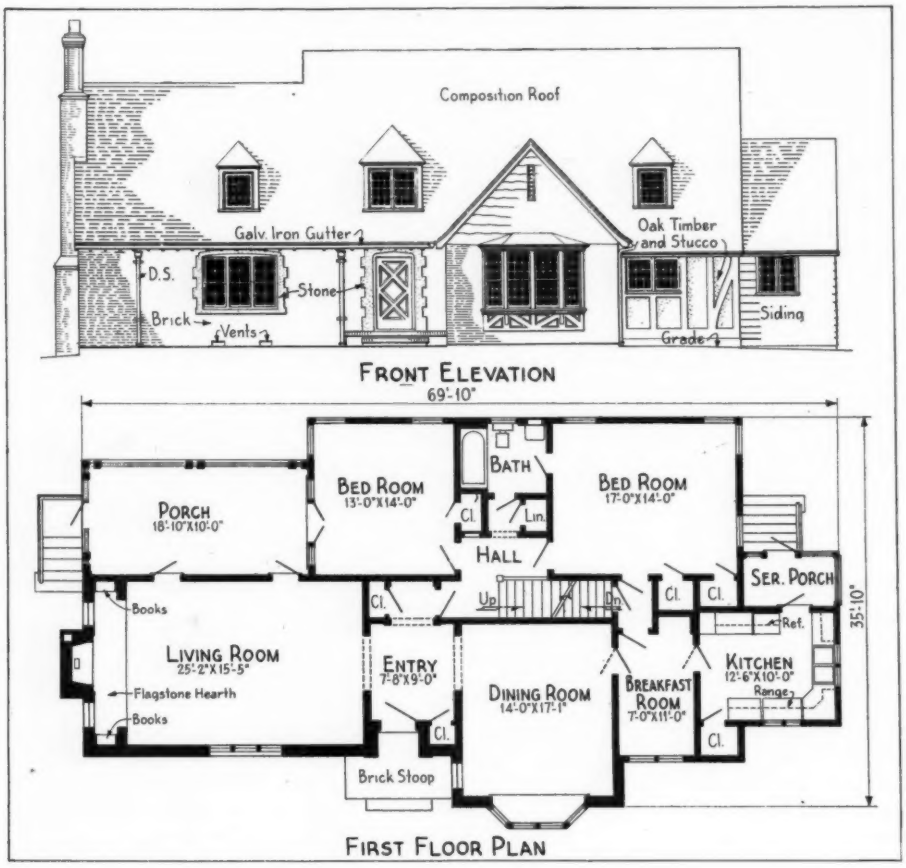
**A LITTLE modernizing with asbestos siding brings old-timers back into shape for years of economical occupancy.**

# Southern Home Built for Future Expansion

NAMED the "Honeymoon House" because it would suit the needs of a bride and groom, this home was recently erected in Birmingham, Ala., by W. E. Lively, general contractor, from plans by E. B. Van Keuren, architect.

It is particularly well fitted to the wooded site, and the exterior construction and detailing of whitewashed brick, oak timbering and stucco on frame with cut stone trim make it most appealing. The rusticity is further carried out with rough weather-boarding in the gables, and on the kitchen wing. The windows, of both casement and double-hung type, are carefully styled for their location; all are weatherstripped. The roof is asphalt shingles.

In plan, the layout is extremely spacious, with the five




**THE front elevation of this Birmingham, Ala., home, designed by E. B. Van Keuren, architect, and built by W. E. Lively, combines a number of materials into a pleasing English styling not usually associated with the South.**

**THE exterior of this home, as illustrated below, has been finished in whitewash and white paint, making it quite unusual for this type of design. It contains five rooms on the finished first floor, and provides space for additional rooms above.**

principal rooms arranged on one floor; other space includes entry hall, stair hall, breakfast room, and two porches, one a large living porch opening off both living room and bedroom. The circulation has been adequately handled, with access from nearly every room directly to at least two other units of the house. The planning of the stair hall in the center of the house was considered in relation to future expansion. Should increase in space be necessary, the attic can be converted into additional rooms and bath, maintaining the sleeping quarters on both floors as a related unit. This planning was carried through to the extent of putting in the plumbing stubs and heating ducts so that it will be a relatively simple job to finish. There is also space for future basement recreation room.

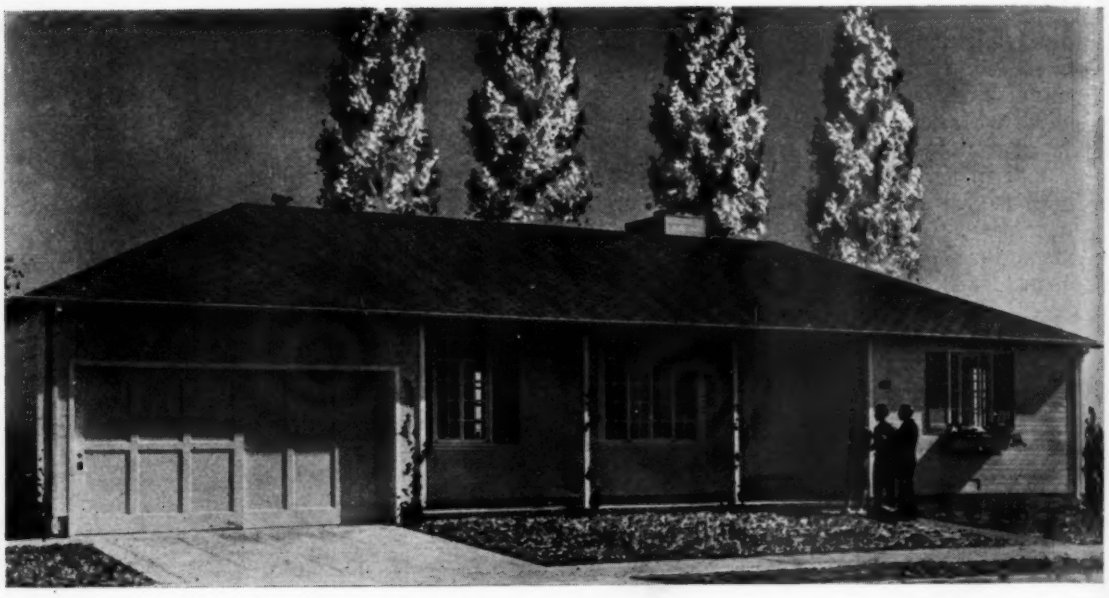
The living room and all-electric kitchen shown below indicate the novel and complete manner in which the interiors were handled. At one end of the living room a wide, flat archway with a pine paneled face gives an ingle nook effect, the flagstone hearth extending across the width of the room; bookshelves are built in at each side. Work counter tops and cabinets extend continuously around the two outside kitchen walls, with windows providing light for sink and stove. A refrigerator and additional cabinet space are placed in the opposite corner.

## Two Attractive and Efficient Rooms in "Honeymoon House"

**A COZY effect is created in the living room, with the pine paneled walls around the fireplace and facing the ingle nook. The raised flagstone hearth gives separation at the floor line.**

**THE all-electric kitchen has plenty of work-top area arranged for efficiency, with counter space flanking sink, stove and refrigerator. Casement windows give good daylighting. Closet in the corner.**

**RANCHO Pabco demonstration home in San Mateo, Calif., pictures a long covered veranda between the bedroom and garage wings.**



# Interiors of California Model Home

THIS spring something different in model homes was offered for inspection by the home buying public of San Mateo, Calif. There the "Rancho Pabco," a five-room dwelling with separate laundry and two-car garage, was built by The Paraffine Companies to demonstrate new decorating and painting effects with furniture stylized for each room.

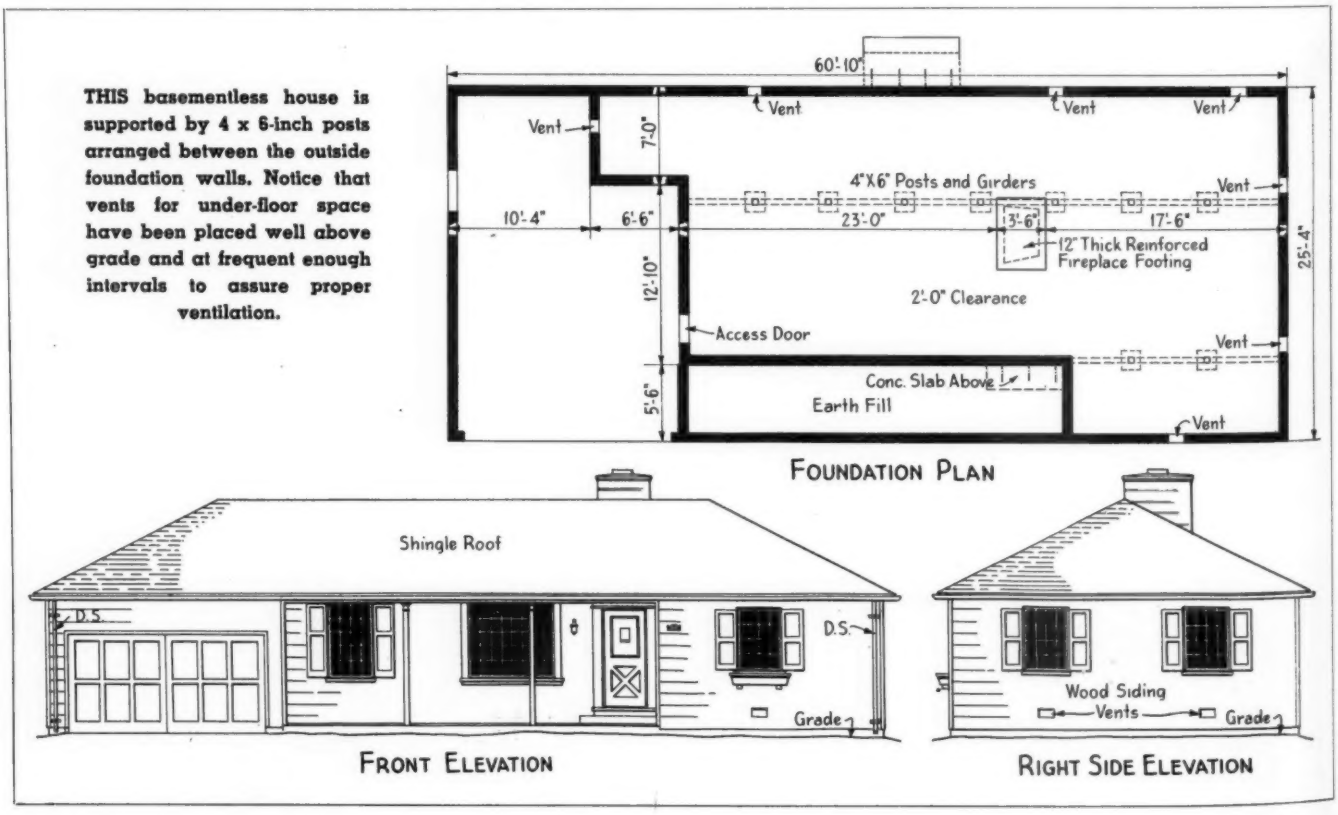
Blonde Swedish modern furniture is used in the living room, which is floored in a golden tan design simulating hardwood parquet floors. A border of red onyxtone marbleized Pabco linoleum surrounds the "curly maple" design, giving warmth and color to the room. All-white walls and ceiling, and a fireplace, complete the decorating.

In the kitchen, the linoleum floor features shades of yellow, blue and white. The yellow theme repeats itself in the ceiling paint, and walls are white. The drainboard is covered with the same linoleum pattern used for the floor, and backsplash and cove base are of a deep harmonizing blue.

A breakfast room that is built into the kitchen continues its decorative theme, and is furnished with a metal set of yellow and white.

All-white walls, white fixtures and a deep blue linoleum floor with white feature strip decorate the bath.

**THIS basementless house is supported by 4 x 6-inch posts arranged between the outside foundation walls. Notice that vents for under-floor space have been placed well above grade and at frequent enough intervals to assure proper ventilation.**



**THE living room extends across the middle of the house with French doors at one end and a large casement window at the other.**

# Harmonize with Colorful Floors

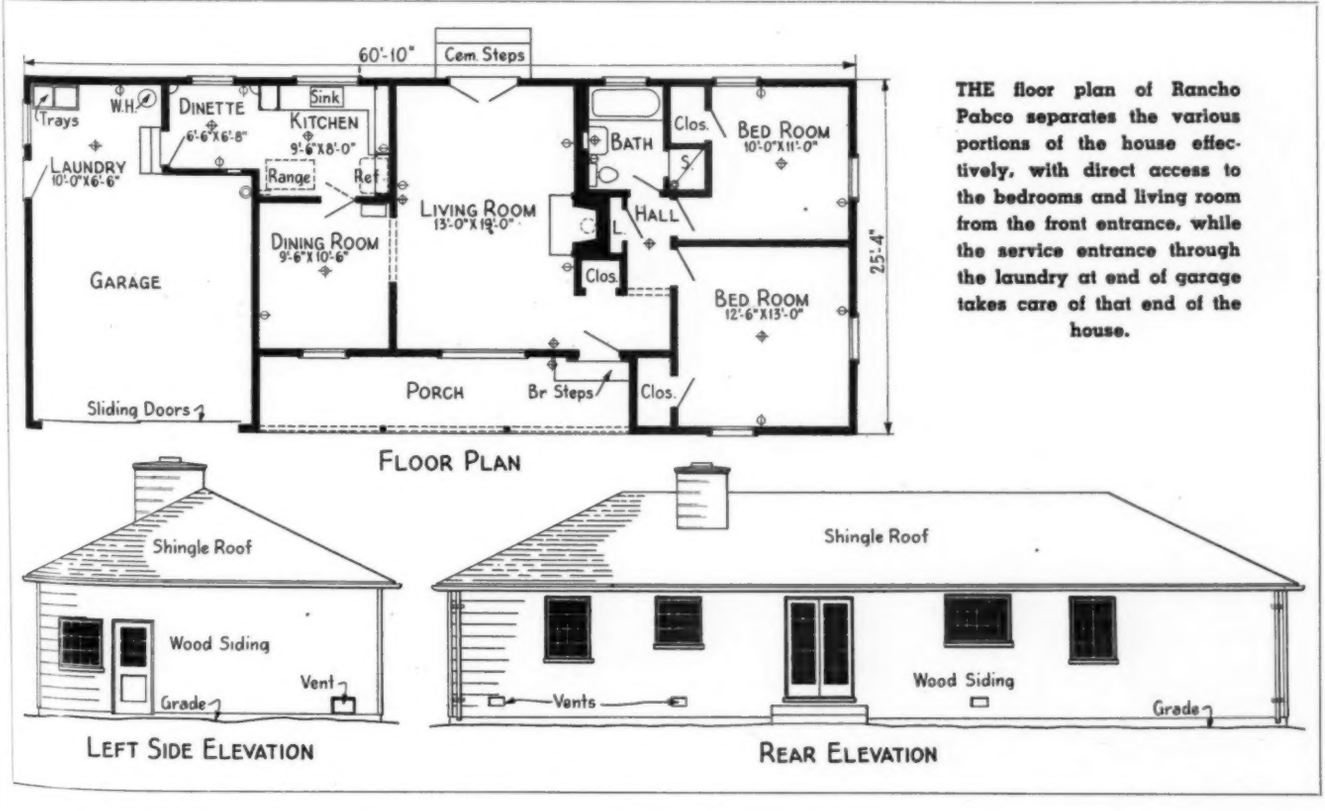
In the bedrooms, a novel decorative method has been employed . . . that of painting three walls in white, and the fourth wall in the room's dominant color. The master bedroom has a marbleized green-and-orange linoleum pattern, and the fourth wall and the closet interiors have been painted pastel green. Knotty pine furniture is painted an antique white, and trimmed with green.

The guest room, furnished in Pilgrim finish maple, employs a red, blue and white marbleized linoleum, three white walls, a blue wall and blue closet interiors.

In every case, according to Fred W. Rea, home decorating expert of The Paraffine Cos. Inc., decorations have followed the color mood set by Pabco linoleums.

In the exterior construction and decoration of Rancho Pabco, its designers have laid heavy emphasis on the new trend of making a home's exterior as charming and tasteful as its interior.

The importance of proper color consideration to the exteriors has been a 20th century innovation to the ancient art of building and beautifying homes. For Rancho Pabco, decorators developed an entirely new shade—clipper blue—for its shingle roof. The other house colors—white and light blue trim—were applied because of their proper relationship to the roof color.




**THE floor plan of Rancho Pabco separates the various portions of the house effectively, with direct access to the bedrooms and living room from the front entrance, while the service entrance through the laundry at end of garage takes care of that end of the house.**

# Portfolio of Architectural Plates of DOUGLAS FIR PLYWOOD PANELING

PREPARED BY CARL F. GOULD, F.A.I.A.

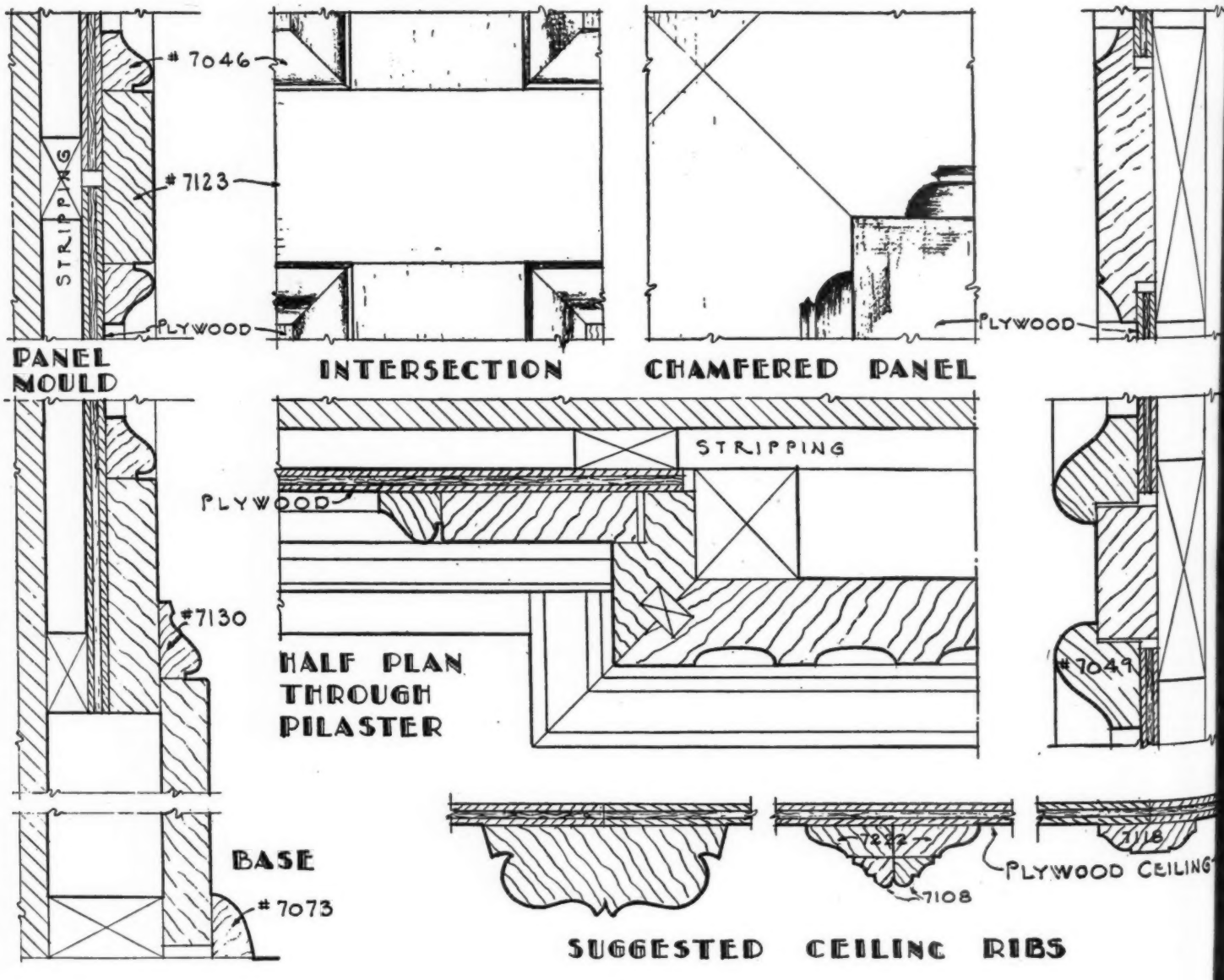
**The last of a series, intended as suggestions to the builder and architect as possible ways of using Douglas Fir Plywood for the finish of a paneled period room with fireplace**

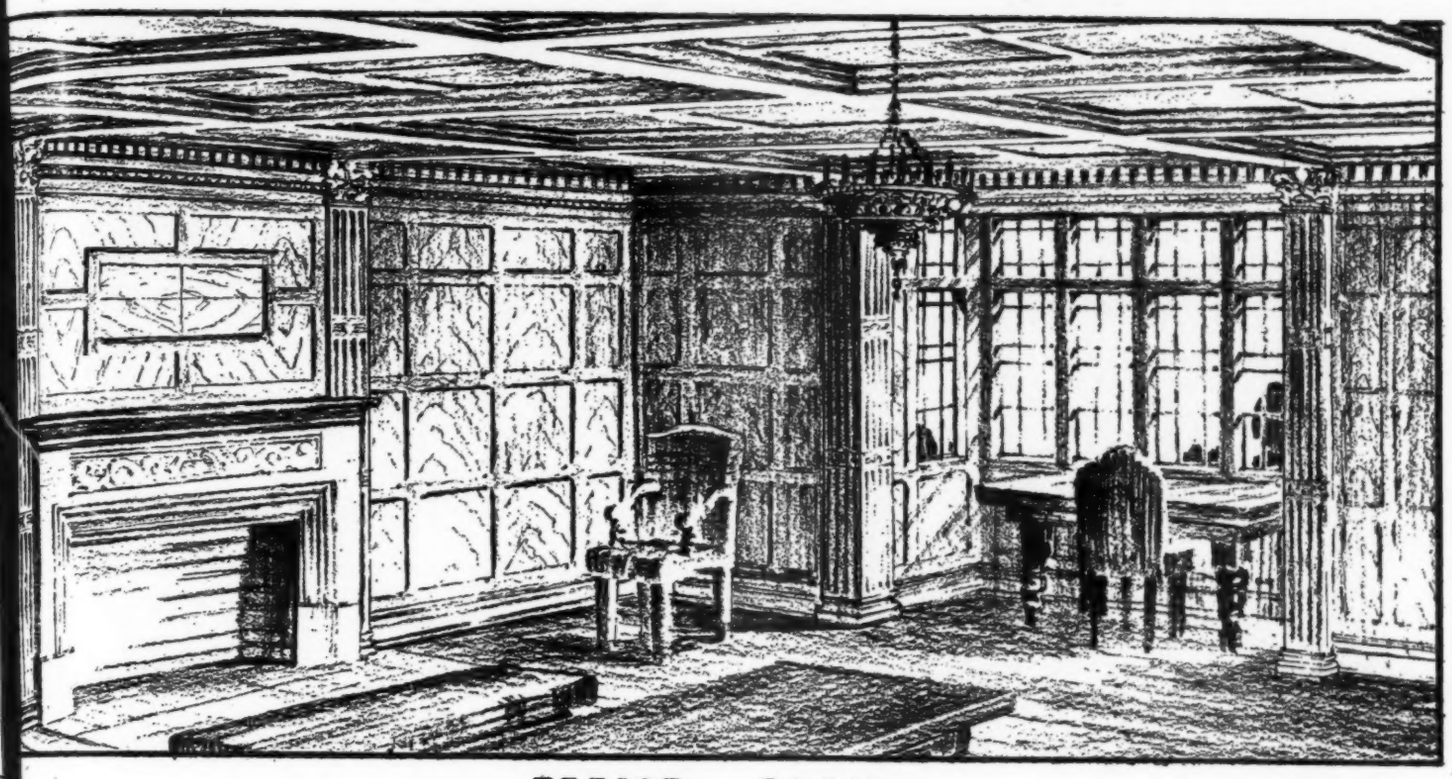
THE highest degree of finish for which plywood can be satisfactorily employed is shown on these two pages of details. The general character of this interior is an early Renaissance type of design, with fluted pilasters and carved or composition caps. Douglas fir plywood is used for the panels proper, both of the walls and the ceiling. Panel stiles and rails are moulded from solid Douglas fir stock to match. This type of design calls for stained antique finish, approximating a brownish tone, but avoiding red, on both the walls and the ceiling. All woodwork should be waxed, and rubbed down to a dull gloss finish.

MATERIALS: Panels of Douglas fir plywood 1/4" or 3/8" thick, in a good 1-side grade, which is all heart-wood and practically clear veneer on the exposed face. Mouldings are selected from the Standard Wood Mouldings, 7000 series. Nailing is done with 4d finishing or casing nails under the stiles and rails. Nails can be placed safely within 1/4" of the edge of Douglas fir plywood if necessary.

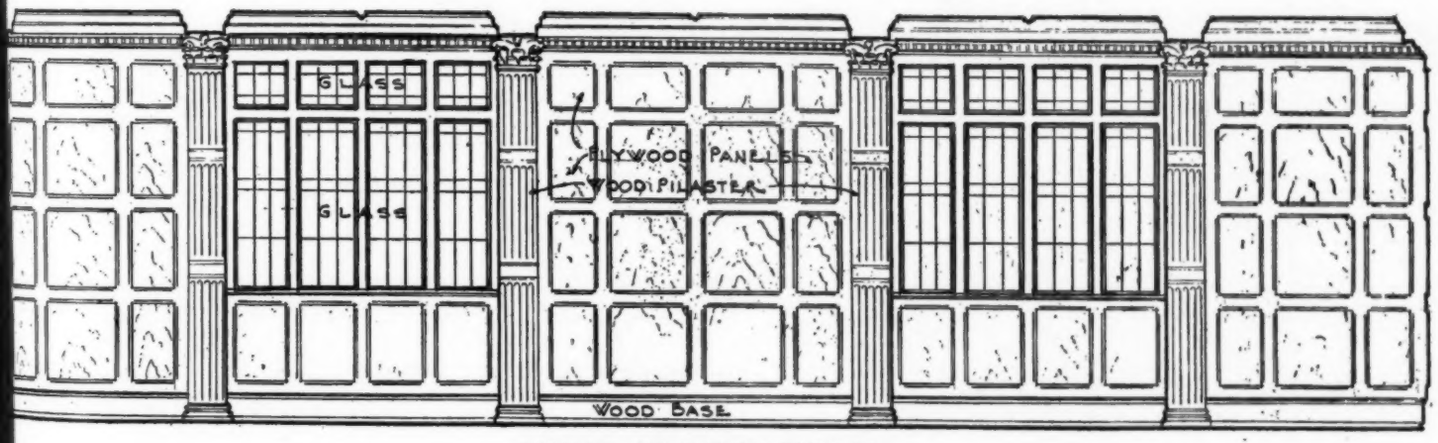
## DETAILS

SCALE ½ FULL SIZE

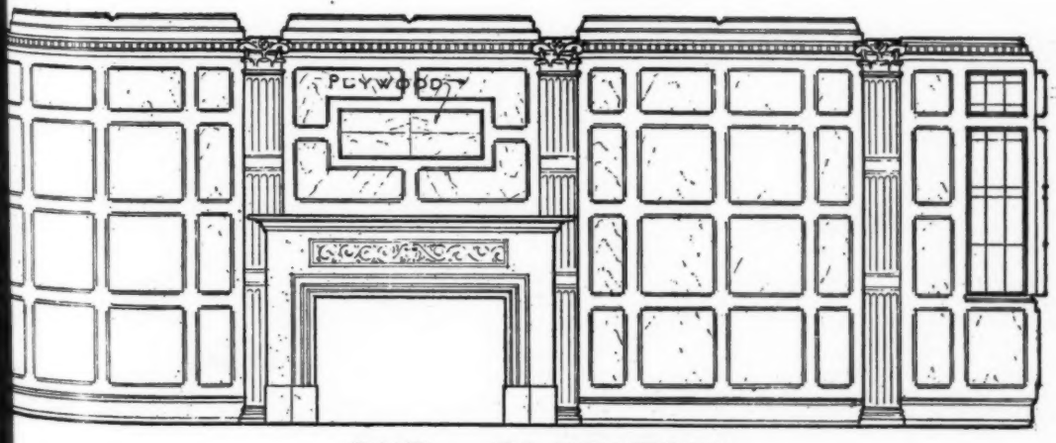




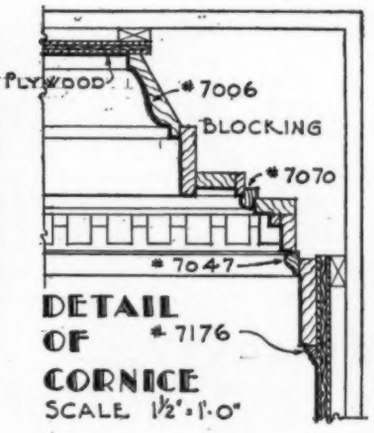
PERIOD ROOM




SIDE ELEVATION
SCALE ¼" = 1'-0"




END ELEVATION
SCALE ¼" = 1'-0"




DETAIL OF CORNICE
SCALE 1½" = 1'-0"

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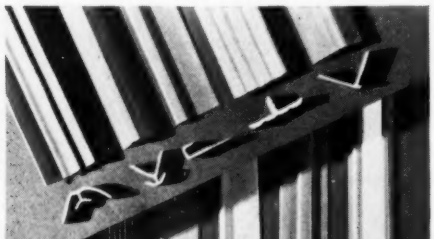
## WHAT'S NEW IN BUILDING MATERIALS

**AB535** Lumarith extruded moulding for wall panel joints for ornamental trim for walls, tables, cabinets, etc., is a new product of Celluloid Corp., New York City. Chip and corrosive proof, flexible, light in weight, and available in a variety of colors and plain translucents that harmonize and blend with paint and paper, it is a washable trim. Note that there is a channeled moulding which accommodates a strip of contrasting color. This can be fastened with nails to the surface, and the strip slid into the channels to cover the nails. Note, too, that the wide striped table edging has a "biting" strip set at right angles with teeth that grip the wood base, and prevent shifting. These mouldings are extruded by R. D. Werner Co., Inc., New York City, using Lumarith molding powder.



**LUMARITH wall-panel joint trim.**

**AB536** "How to Have the Home You Want" is one of a new library of four extremely helpful building books by the United States Gypsum Co., Chicago. Measuring 8½ x 11 inches, 124 pages and covers, this book is written and illustrated for the home buying and home owning public and gives sound detailed information, attractively illustrated and presented. Home planning, financing, construction and equipment are covered, along with pertinent information on USG materials. Dealers, builders and other industry factors are being supplied quantities of these USG books, bearing their own imprint for local consumer distribution, at a nominal price.

**AB537** The 1941 "Home Idea Book" of Johns-Manville (New York City) contains 56 pages, many in full color, and includes a portfolio of small home designs, suggestions for interior decoration, ideas for landscaping, color use on the exterior of the house, information on J-M materials, explanation of the Housing Guild's "One-stop" service, and construction and financing information.

**AB538** "Window Ideas for Small Houses" is announced by the Detroit Steel Products Co., Detroit, Mich., as "the first of four portfolios by eminent architects." This first collection presents five beautifully rendered small homes.

**AB539** A special portfolio *for architects and engineers only* has been compiled by the Dierks Lumber & Coal Co., Kansas City, Mo., to cover "Dierks Lumber Products." Twenty data sheets in looseleaf binder cover Dierks interior trim, pre-shrunk lumber, end matched flooring, sheathing and decking, vertical siding, knotty pine paneling, etc.

**AB540** The Armstrong Cork Co., Lancaster, Pa., offers four new brochures on its floor and wall materials, Armstrong's linoleum and linowall and Armstrong's asphalt tile. These brochures, ranging from 6 to 16 pages, are presented in full colors—a gold mine of decorative and design suggestions.

**AB541** The New-Londoner hollow-core flush doors, produced by the American Plywood Corp., New London, Wis., are featured in an attractive 8-page leaflet, "Open for Inspection." Supplementary information is also given on "Wallwood" 3-ply panel in various hardwoods, another product of this firm.

**AB542** Marlite Velvetex, a new low priced prefinished wall paneling, of the Marsh Wall Products, Inc., Dover, O., is explained and sampled in a new announcement portfolio.

**AB543** New arguments for adequate insulation with mineral wool are presented in a 2-page illustrated data sheet prepared by the National Mineral Wool Assn., New York City. Five types of houses are illustrated, and each is analyzed on a fuel-savings basis for (1) attic insulation, (2) side wall insulation, and (3) window conditioning, and then complete insulation, all three.

**AB544** Azrock carpet tile, manufactured by Uvalde Rock Asphalt Co., San Antonio, Tex., is featured in a 12-page portfolio illustrating many typical installations and showing desirable patterns and color schemes.

**AB545** Water-cooled roofs, which help insulate factories, office buildings and homes against the sun's rays by means of evaporation, are the subject of a new folder, "Spray Pond or Water-cooled Roofs" by Koppers Co., Tar and Chemical Div., Pittsburgh, Pa.

**AB546** A simple little device—merely a piece of stiff, flat copper wire bent to form a clip—has proved its ability to make asphalt roofing and shingles lie flat and stay flat, without leaving one nail exposed to the elements. It has made such a place for itself among manufacturers of roofing and shingles that they are using more than two million of these Seal-All clips a month, and now the Seal-All Clip Co., Flint, Mich., is making lumber and materials dealers acquainted with the product. The clips can be applied at the time the shingles are nailed or afterward.

**SEAL-ALL clip fastens overlap and sidelap.**

**AB547** The new 1941 Fir-Tex insulation board catalog, for architects and builders with master specifications for interior finish, sheathing, plaster base and roof insulation, is a well illustrated data compilation of 16 pages. Numerous details and construction view photographs are included.

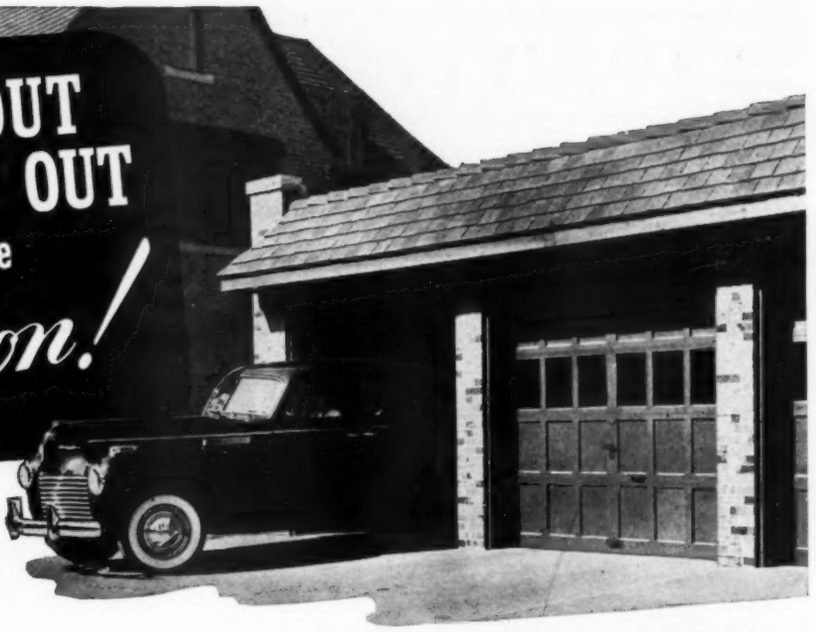
**AB548** "Lehigh Mortar Cement Stucco" is the title of an exceptionally interesting illustrated handbook by the Lehigh Portland Cement Co., Allentown, Pa. Recommended practice and specifications on the use of Lehigh mortar cement for stucco and plaster are included, along with data on several popular texture finishes.

**AB549** Engineered farm buildings are featured in a 4-page data sheet by Unit Structures, Inc., Peshtigo, Wis. These are gothic type curved roof buildings for which complete glued up framing members are furnished.

*Readers Service Department Continued to Page 88*

**FOR QUICK, CONVENIENT SERVICE, USE COUPON, PAGE 92**

# DAY IN—DAY OUT
# DRIVE IN—DRIVE OUT
## with Trouble-Free
## *Satisfaction!*



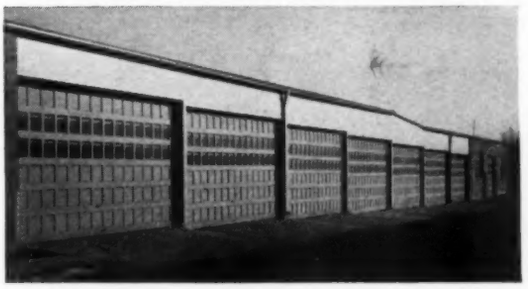
Attractive three-car garage equipped with Ro-Way Overhead Type Garage Doors. Architects, Aldrich & Aldrich, Galesburg, Ill. Contractor, John Dahlberg, Galesburg, Ill.

**That's the Dependable Service Car Owners find with**

# Rō-Way

# OVERHEAD TYPE DOORS

**You wouldn't be satisfied today with the kind of a motor car you thought was the "pick of the market" 5 years ago. You want the later improvements, because you know how much they add to the service and satisfaction you get. Things have been happening in the Garage Door Field, too. See the Ro-Way Overhead Type Door and you'll get what we mean. Listen to its quiet operation. Feel the added strength of "Tailor Made" Spring Power that seems to say, "Stand back! Let me do *all* the lifting." Then examine those watchful parts of the simple Ro-Way mechanism that keeps the sheave wheels in true alignment, and the Ro-Way Door from sticking and binding. Note the metal finishing process that keeps the hardware parts from rusting and corroding, and see the new feature that makes even the rarely needed spring adjustment a matter of quick convenience. Best of all . . . prices are not higher . . . you won't pay a penny more for all that Ro-Way gives.**



18 Ro-Way Overhead Type Doors were installed in C. D. Kenny Warehouse, Baltimore, Md. Installation by Kirson Construction Company, Contractors.

## Get These 5 Extra Values

## Rō-Way gives them at no Extra Cost!

**They are the pace-setting Ro-Way improvements designed to insure smoother operation and added years of service . . . "Crow's Foot" Outer Bearing Support . . . "Ro-To Live" Spring . . . "Zip-Lock" Adjustment . . . "Tailor Made" Springs . . . and Parkerized and Painted Hardware.**

This distinctive duplex apartment building, owned by Morris Marks, Salt Lake City, Utah, is equipped with two Ro-Way Overhead Type Doors.

## Rō-Way Service is Nationwide

**Sales offices with competent installation engineers, are located in principal cities. Write for name of one nearest you; also for Free Ro-Way Door Folders, Prices and Complete information.**

**ROWE MANUFACTURING CO.** 725 HOLTON STREET Galesburg, Ill., U. S. A.

Ro-Way Overhead Type Door, 16' x 7'6", replaced another type of door when this attractive home was purchased by John McNerney, Toledo, Ohio.

ROWE MANUFACTURING CO.,
725 Holton St., Galesburg, Ill.

Gentlemen: Please send me Free Descriptive Folder and Price List on Ro-Way Overhead Type Doors.

Name.....

Address.....

City..... State.....

*There's a Ro-Way for every Door way!*

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## EQUIPMENT ITEMS FOR MODERN BUILDINGS

**AB550** "Safexit" collapsible ladder, manufactured by Patterson & Koster Iron Works, Inc., San Francisco, solves the common fire-escape problem. Installed on the lowest fire-escape balcony, it gives service to the sidewalk when needed and is not a burglar hazard, as it can only be tripped from the balcony. Numerous apartments, hotels and office buildings are installing this tested and approved piece of building equipment. This ladder can also be installed at the side of a window, no balcony being required.

**"SAFEXIT" in lowered position and (at right) retracted when not in use.**

**AB551** "What Home Owners Say About Silentite Windows" is good reading from the Curtis Companies Service Bureau, Clinton, Ia., in the form of a 24-page pamphlet. Letters from satisfied Silentite customers from 40 of the 48 states and from Canada are quoted. This type of testimonial advertising is convincing and seems particularly appropriate for Curtis on its 75th anniversary.

**AB552** New Tru-Fit Douglas fir doors, are shown in a new 16 page catalog from the Fir Door Institute, Tacoma, Wash.; 27 of the most popular factory-fitted, scuff-stripped precision made fir doors are illustrated.

**AB553** New and important information on the Youngstown pressed steel kitchen equipment and service for better kitchens is offered in a new spirally-bound, 24-page portfolio supplemented by data sheets which give specifications and dimensions of the complete range of base and wall cabinets to complete the kitchen ensemble under this plan. The Youngstown pressed steel equipment is the product of the Youngstown Pressed Steel Div., Mullins Mfg. Corp., Warren, O.

**AB554** Morton steel kitchens, made by Morton Mfg. Co., Chicago, are convincingly illustrated in an 8-page heavy paper folder which shows the great flexibility of arrangement of these wall-, base- and corner-cabinets for any type and size of floor plan. The standard units are illustrated and dimensioned and interesting details of construction and installation are given. A special folder shows the famous Morton kitchen layouts for 6, 7, 8, 9 and 10 foot spaces.

**AB555** "Cast Iron Verandas and Railings" is a new design portfolio and catalog from Smyser-Royer Co., York, Pa. It features "century old charm for the home of today" which is secured by use of cast iron verandas and railings of beauty and distinction, as illustrated in this superb collection. Ornamental work suitable for home entrances, both large and small, are included.

**AB556** The Barcol Overdoor is presented in a new 12-page catalog from Barber-Colman Co., Rockford, Ill. Many details illustrate the working of this improved overhead-type door with arrangements for manual operation, electric operation and radio control.

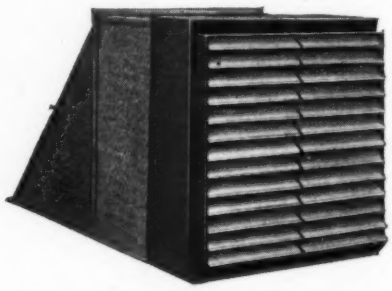
**AB557** A "Farm Wiring Handbook" is offered by the General Electric Co., Appliance and Merchandise Dept., Bridgeport, Conn. It is a guide for planning electrical wiring on farms; 28 pages and covers, it tells in simple language and diagrams how to lay out and handle the wiring installation of a typical farmstead. Essential wiring supplies are explained.

**AB558** Victor In-Bilt ventilators as developed by the Victor Electric Products, Inc., Cincinnati, O., are attractively featured in a new 10-page data sheet. It shows the trend of modern home dwellers toward more, better and healthier ventilation. "Victor makes lived-in rooms more livable" is the slogan of this catalog; and ventilation in kitchen, bath, play room, laundry and den is stressed.

**AB559** Safety peep-hole door knockers are manufactured by J. Thomas Rhamstine, Detroit, Mich., and are illustrated in three attractive designs, Puritan, Colonial and Old English, in a new specification and data sheet.

**AB560** Expansion bolts, screw anchors and masonry drills are featured in catalog No. 41 of the Rawlplug Co., Inc., New York City. This is a vestpocket size booklet of 40 pages and contains a great deal of detailed information of interest to expansion bolt users.

**AB561** The Model "R" Viking roof ventilator is offered by Viking Air Conditioning Corp., Cleveland, O. It has been designed primarily for flat roof installation. It is a complete unit consisting of a Viking high capacity fan assembly enclosed in a weatherproof penthouse of heavy galvanized iron and automatic vertical shutters. It can be flashed directly to the roof slab since flanges are provided for this purpose. It is available in three sizes having capacities of 7,500, 11,500 and 16,500 CFM respectively. An outstanding feature of Model R is the automatic vertical shutter. This consists of balanced, light weight, aluminum vanes supported by steel shafts pivoted in bronze bearings.



**NEW model R Viking roof ventilator.**

**AB562** "Use Your Attic" is the advice of the Marschke Co., 551 University Ave., St. Paul, Minn., in a new 10-page folder, illustrating the complete line of Marco stairways. These folding or disappearing stairways come complete in a carton, assuring clean delivery and easy installation. Four different popular models are illustrated.

**AB563** "Practical Control for All-Glass Doors" is a timely 6-page data sheet put out by Norton Lasier Co., Chicago, featuring the LCN concealed door control installed either above or below. All-glass doors are made of heavy plate glass.

*Readers Service Department Continued to Page 90*

**FOR QUICK, CONVENIENT SERVICE, USE COUPON, PAGE 92**

# Cost Little More than Panelled Doors!

A few years ago, before the days of real mass production, flush doors were usually very costly —far too expensive for "everyday" jobs.

*Today the Mengel Company, one of the largest wood-working organizations in the world, produces flush doors by the hundreds of thousands—and the cost has come down accordingly!*

Yes, and they are *better* flush doors, too! Patented center-grid construction, with the core completely sealed by the faces, eliminates expansion and contraction troubles—*reduces* weight—*increases* strength —and *permits* us to make the world's strongest and most liberal guarantee!

Don't wait any longer to learn all about Mengel Flush Doors. Use the coupon, NOW!

## MENGEL BORD—a revolutionary new product!

If you use plain or fancy interior plywood panels for any purpose whatsoever, you can do it better and at less cost with Mengel Bord! Made with faces of Gum, Mahogany, Birch, Walnut and Oak, by a unique hot-plate method. The walls in the photo above, for instance, are Gum Mengel Bord. Three grades to meet almost any requirements. Check the coupon for details.

The Mengel Co., *Incorporated*
1124 Dumesnil Street
Louisville, Ky.

*Gentlemen:* Please send me, at once, full information about Mengel Flush Doors ☐ . . . Also about Mengel Bord ☐

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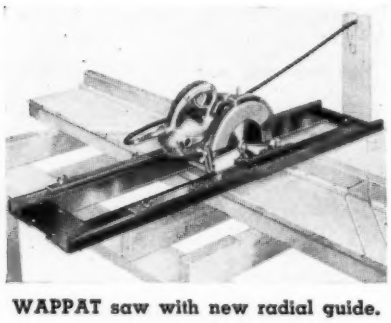
## NEW MODELS, POWER EQUIPMENT & TOOLS

**AB564** The 1941 "Handy Sandy" streamliner has been introduced by the Hilger Co., St. Cloud, Minn., the manufacturer of Hilco floor sanders. All working parts have been concealed to avoid any mechanical distractions to unskilled rental customers. Amply cooled through generous ventilating louvres, modern lines distinguish its appearance. The 1941 model hugs the floor, the center of weight having been lowered by a new under-slung principle. Like all Hilco floor sanders it features the Hilco vise drum which eliminates fussy adjustments in changing sandpaper.

**NEW Hilger streamlined sander.**

**AB565** A new radial saw guide by Fred W. Wappat, Pittsburgh, converts 8" or 9" electric band saws into a radial saw in less than two minutes. The design is such that material is held down upon the table, the cutting stroke may be from back to front, and work may be placed on table from front so that threading it through from end to end becomes unnecessary. The guide may be firmly locked for both square and angular cuts.



**WAPPAT saw with new radial guide.**

**AB566** Sasgen hoists and derricks, an old-time, pioneer line, are nicely presented in a new 8-page pricelist catalog from Sasgen Derrick Co., Chicago. Included are the popular Sasgen hand derricks with capacities from 1,000 lbs. to 2,500 lbs., also mast and boom and setter type derricks, material elevators, and power hoisting machines and winches.

**AB567** Adjustable Clamp Co., Chicago, has issued clamp catalog No. 15 covering its well-known line of Jorgensen, Pony and Mark clamps. These are of adjustable hand-screw types, steel bar clamps, "C" clamps, and various special purpose clamps. Each is priced in many sizes and models.

**AB568** Stanley electric safety saws for builders, maintenance men and shippers are featured in a new saw folder, S65, from the Stanley Electric Tool Div., New Britain, Conn. These saws are offered in models with cutting capacities from 1⅞" to 6". Saw blades and accessories are included.

**AB569** The Unit Electric Tool Co., Inc., Syracuse, N. Y., has a 6-page data sheet on its new "Uniquip" router, power plane and mortiser and its hinge butt templet. A large line of cutter heads and electric tool accessories are also included.

**AB570** The Adjusta-Post Co., Akron, O., offers a 4-page data sheet on the Akins' adjustable jack-post, a useful tool for bringing buildings into plumb, supporting store fronts during building alterations, when replacing rotted cellar posts, etc. With lifting power of 20 tons, it saves the expense of labor of shoring-up with heavy timbers.

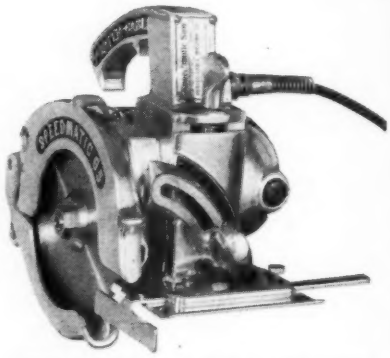
**AB571** Bucyrus-Erie bullgraders and bulldozers for use with International Trac-Tractors are illustrated in a new 24-page bulletin from Bucyrus-Erie Co., South Milwaukee, Wis. Sixty photographs plus drawings and diagrams "tell all" about construction details and design features. Actual field action shots show performance.

**AB572** The 50th anniversary catalog of the Chain Belt Co., Milwaukee, has been issued (Bulletin No. 380). It shows the complete line of Rex concrete mixers from the 3½S up to and including the 14-S. A "tab" indexing feature sectionalizes the book so that each type of machine can be easily found.

**AB573** The Speedway ½" drill (Speedway Mfg. Co., Cicero, Ill.), has a new-type natural grip breastplate handle which, by producing a more direct application of power, is increasing accuracy and speed of drilling operations. This Speedway drill is light enough for portable use, yet heavy enough to stand up to production drilling; it has a powerful, specially wound, high-torque back geared universal motor, which has self-aligning, oilless bearings, forced air cooling and other advanced design features. It is said that the drill's low load speed makes it particularly adaptable for use with carbide drill bits in drilling brick, stone, concrete, etc.

**SPEEDWAY ½" drill designed for straight thrust.**

**AB574** The Porter-Cable Machine Co., Syracuse, N. Y., announces another addition to its line of Speedmatic saws. This new machine carries a 6½" diameter blade, with cutting capacity of 2" material, yet weighs only 15½ lbs. The blade travels at 7200 r.p.m. producing a cutting edge speed in excess of two miles a minute. Through the use of the helical cut gear drive in this tool 98 per cent of the motor power is transmitted to the drive shaft, it is claimed. This model is designated as Type K-65. It is perfectly balanced and equipped with a ⅝ h.p. universal motor. The base raises and lowers for depth adjustment, and tilts to 45 degrees for bevels.



**NEW Speedmatic light weight saw.**

*Readers Service Department Continued to Page 92*

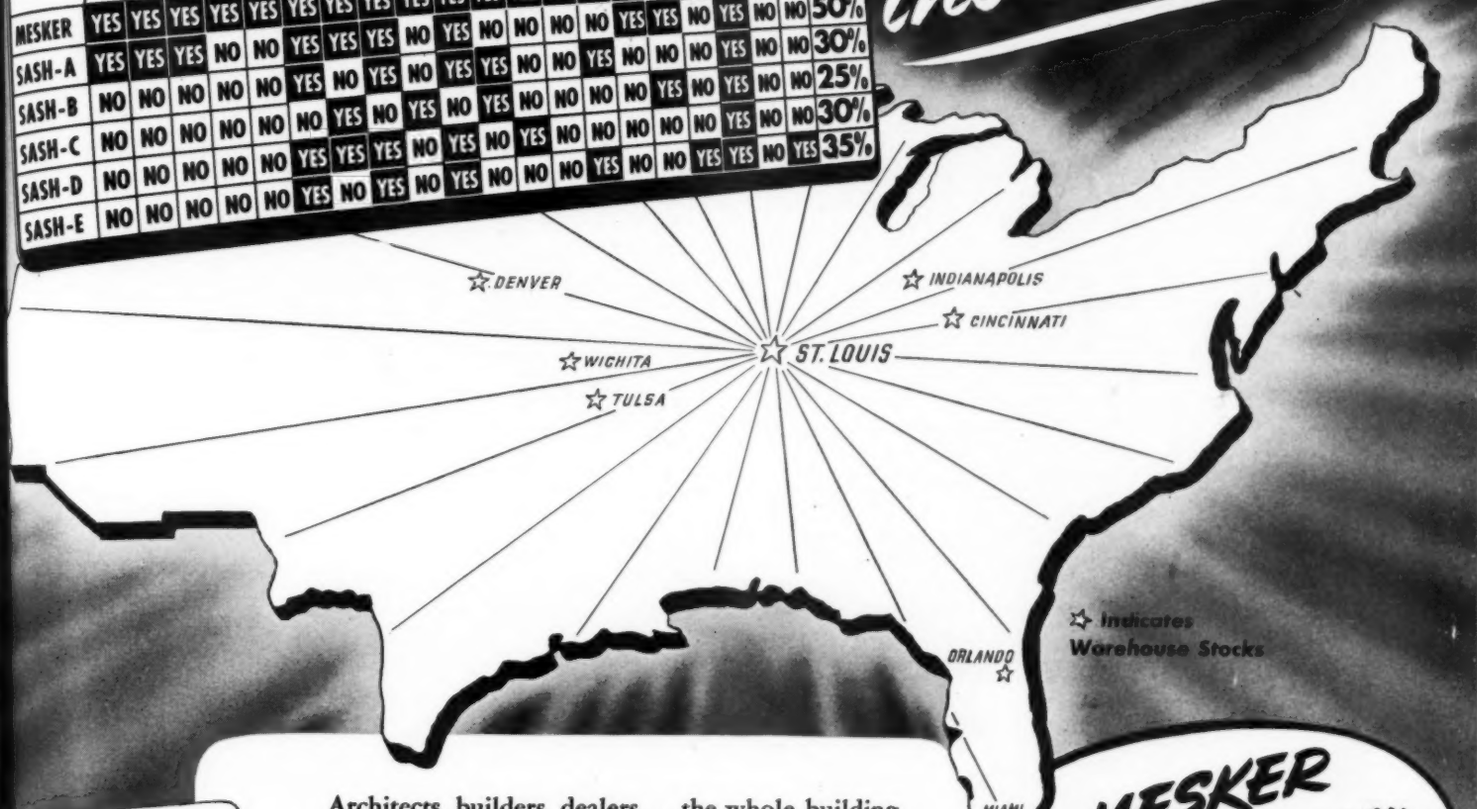
**FOR QUICK, CONVENIENT SERVICE, USE COUPON, PAGE 92**

# IT'S BIG NEWS...
## to the Building Industry

### ★ STEEL SASH "MERIT-METER" ★

| POINT NUMBER | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SWORN BASIC FACTS USED ARE FROM 1940 SWEETS CATALOG | Frame Bars 1½" deep | Ventilator Frame Bars 1⅝" deep | Muntin Bars 1½" deep | All weathering members hot rolled 1⅛" angles | Rustless Bronze bearing cap pivot | Riveted Frame Corners | Welded Frame Corners | Riveted Ventilator Corners | Welded Ventilator Corners | Interlocked Muntin Joints | Welded Muntin Joints | Cam lock & push bar standard | Vertex Corners on All weathering members | ⅝" Masonry Anchorage | Available with wrought iron sills or all wrought iron | Flat Outside Surfaces | Available in Tuscan Bronze | Available with Phosphate rust proofing | One piece bar rolled frame section for outside glazing | Integral bottle on Ventilator Bar | |
| MESKER | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | NO | NO | YES | YES | NO | 85% | |
| SASH-A | YES | YES | YES | NO | NO | YES | YES | YES | NO | YES | NO | NO | NO | YES | YES | NO | YES | NO | NO | 50% | |
| SASH-B | NO | NO | NO | NO | NO | YES | NO | YES | NO | YES | YES | NO | NO | NO | NO | NO | YES | NO | NO | 30% | |
| SASH-C | NO | NO | NO | NO | NO | NO | YES | NO | YES | NO | YES | NO | YES | NO | NO | YES | NO | YES | NO | 25% | |
| SASH-D | NO | NO | NO | NO | NO | YES | YES | YES | NO | YES | NO | YES | NO | NO | NO | NO | YES | NO | NO | 30% | |
| SASH-E | NO | NO | NO | NO | NO | YES | NO | YES | NO | YES | NO | NO | NO | YES | NO | NO | YES | YES | NO | YES | 35% |

## clear across the country!




**MESKER Steel Sash gives you 35% MORE QUALITY for your money!**

Architects, builders, dealers... the whole building industry is talking about the Steel Sash Merit-Meter. It's the one simple, easy-to-understand comparison of steel window quality. Based on sworn facts, taken largely from Sweet's 1940 Architectural Catalog File, it compares the quality of leading steel windows, point-by-point, FACT BY FACT. It PROVES Mesker gives you at least 35% more quality for your money! While detailing only Industrial Pivoted Sash features, it's indicative of the extra value in *all* Mesker products. *It's the one SURE WAY to specify steel sash the RIGHT WAY.* Get *your* copy now!

**Make the VISUAL-TEST**

**SEE the difference**
**FEEL the difference**
**KNOW the difference**

Write today for your Visual Test Kit. It compares the gauge of metal used in weathering bars by Mesker and others. It's Free.

**MESKER BROTHERS • ST. LOUIS, MO.**

SINCE 1879
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BROTHERS
424 SOUTH 7th STREET
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CASEMENT WINDOWS • MONUMENTAL WINDOWS • INDUSTRIAL WINDOWS
INDUSTRIAL DOORS • METAL SCREENS • DETENTION WINDOWS

MESKER BROTHERS • 424 SOUTH 7th ST. • ST. LOUIS, MO.
Without obligation, send us: ☐ Ready Reference Steel Sash Merit-Meter ☐ Visual-Test Kit ☐ Fileworthy Literature on Mesker Steel Sash ☐ Illustrated Steel Sash Price Book ☐ Mesker Dealer Plan

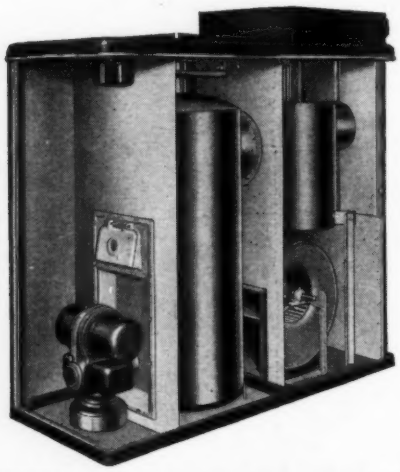
Firm Name _____ ☐ ARCHITECT ☐ BUILDER ☐ DEALER
Address _____ (GIVE STREET ADDRESS OR P. O. BOX NO.)
City _____ State _____
S—AS—41

# SERVICE TO READERS

**EACH ITEM in this department is numbered for convenience of readers. Please use coupon on this page for requesting further product information or new catalogs. Mail coupon to American Builder Reader Service, 105 W. Adams St., Chicago; or write direct to these manufacturers mentioning your profession, occupation or connection with building industry.**

## HEATING AND AIR CONDITIONING

**AB575** The new Toridheet air conditioning furnace, developed by the Cleveland Steel Products Corp., Cleveland, O., is designed for low heating cost in large or small homes. It comes in six sizes with register capacities of 65,000 to 175,000 B.T.U. The furnace is shipped complete in three compact cartons, made easy to handle, especially for the dealers. The smallest of the six models is 26" x 62"—60" high and has a 7½" blower; the largest is 36" x 78"—67" high and has a 16¾" blower. Motor sizes run from ⅙ h.p. to ½ h.p.; all models come equipped with filters.



**CASING removed to show inner construction of new Toridheet air conditioner.**

**AB576** "I-B-R Ratings for Cast Iron Boilers" is a handbook of 40 pages put out by the Institute of Boiler & Radiator Mfrs., New York City. These new ratings, revised as of March 1941, rate the products of 19 prominent manufacturers in this field. A price of 15 cents per copy is placed on this rating book.

**AB577** Coleman floor furnaces, product of the Coleman Lamp and Stove Co., Wichita, Kan., are featured in a new 12-page catalog under the title "Enjoy the Comfort and Economy of your Coleman floor furnace." Written and illustrated from the point of view of the home owner, the information presented is clear, graphic and full of human interest. Coleman floor furnaces of gas burning and oil burning types are featured.

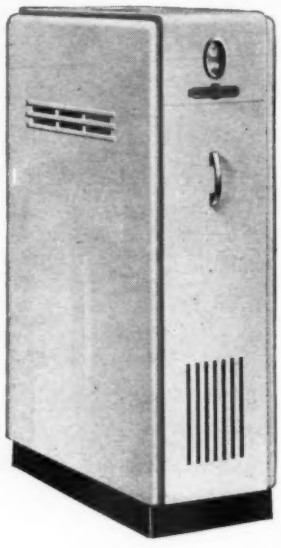
**AB578** The National radiator catalog for 1941 showing the complete line of boilers, radiators and convectors is an impressive brochure of 64 pages. A great deal of technical and practical design data are presented in tabular form as well as in diagrams and details. The National boilers covered include hand and stoker fired coal burners, oil burners, gas fired, cast iron and steel types, and the line of radiators, convectors and radiation enclosures is very complete.

**AB579** Autovent super type unit heaters, developed by the Autovent Fan & Blower Co., Chicago, are presented in bulletin No. 103, a 4-page data sheet. This equipment is for heating large areas in factories, shops, stores and offices.

**AB580** The new Rybolt steel furnace—series 4000—is presented very satisfactorily in a new 4-page folder. This is a low price heating plant, comes both in square casing and round casing.—The Rybolt Heater Co., Ashland, O.

**AB581** "Low Cost Steam from Low-Priced Coal" is the title of a new 12-page bulletin No. 222, Whiting Corp., Harvey, Ill., featuring the Whiting stokers. This is large size commercial equipment of established reputation in this field.

**AB582** The Richmond Heatomat gas boilers are available from Richmond Radiator Co., Inc., Uniontown, Pa., in deluxe and standard models for hot water, steam and vapor heating, and for direct and indirect water storage heating systems. Heatomat gas boilers incorporate a number of distinctive features which make them outstanding for their simplicity of construction, high efficiency and dependable operation.



**NEW Richmond Heatomat gas boiler.**

**AB583** "Taco Specialties for Warm Water Heating" are described in catalog B-99 from Taco Heaters, Inc., New York City, a 12-page data sheet well illustrated and very helpfully presented.

**AB584** "Home Heating & Air Conditioning" is a new 4-page, 3-colored data sheet from Gar Wood Industries, Inc., Detroit, Mich. It explains the air conditioning division's automatic equipment and tells how it affects the health and comfort of home life. This bulletin is especially valuable to home owners who plan to modernize and to builders who do modernizing. Other new Gar Wood literature covers the new line of gas-fired heating and air conditioning units.

## CLIP AND MAIL TO CHICAGO

Reader Service Department (June, 1941)
American Builder,
105 W. Adams St., Chicago, Ill.

**Please send me additional information on the following product items, or the catalogs, listed in this department:**

Numbers .....

.....

Name .....

Street .....

City ..... State .....

OCCUPATION* .....

*Please note that occupation must be stated if full service is to be given

# WHY HOUSES DON'T GET HAUNTED ANY MORE

**The advertisement, "Why Houses Don't Get Haunted Any More," appeared recently in the Saturday Evening Post—bringing the superiority of Barrett Shingles home to over 12,000,000 people, your customers among them!**

SLOWLY you force the sagging door... with pounding heart you step into the hollow blackness. There's a sudden chill breath in your face, and a cobweb fastens upon you like a clammy veil. Then your blood turns to ice! Is that sudden creaking only a shutter in the wind? Is that muffled pounding only the beating of your heart?

For this is the haunted house of our childhood, that great American adventure of after dark. Remember the tingling thrill of it?

But houses don't get haunted any more ... and there's a reason.

Home construction has changed strikingly since those haunted houses of yesterday were built. Today's houses are bright, cheerful, airy and built to be lived in.

From roof-tree to rumpus-room new design, new methods, new materials have taken over. And nowhere is the advance in beauty and serviceability more marked than in today's roofs of Barrett Asphalt Shingles.

Take the Barrett Broad Shadow Shingle, for instance, with its unusual deep shadow effect. The double butt-thickness of this shingle, *plus* the exclusive built-in Barrett Shad-O Band*, gives the rich look of much more expensive roof materials. And gives it at a cost no greater than that of the average asphalt shingle.

Barrett Broad Shadow Shingles come in many attractive colors—are fire-safe, weather-safe, long-lasting, and low in cost per year of service.

When you sell customers on Barrett Asphalt Shingles you are turning to your own good account the prestige of the world's greatest roofing name. You're sure of satisfying your customers—winning their recommendations.

Barrett sales come easier, go bigger. Selling Barrett is the sound, profit-wise way to get ahead. *Reg. U. S. Pat. Off.

**THE BARRETT COMPANY**
40 RECTOR STREET NEW YORK, N. Y.

*One of America's Great Basic Businesses*

Barrett

# ON & OFF the RECORD

## Views and Comments

*by Structor*

**BUILDERS' CHILDREN**—When he described the purposes of the new Home Builder's Institute at its recent meeting in Washington, Dave Bohannon, president, said, **"We want to live as respected citizens in our communities—to stand for lasting qualities—for ideals that are practical." Then he added a significant remark, "We want our children not to be afraid to admit that their fathers are home builders."**

Bohannon is a rugged six-footer, whose new Hillsdale development in San Francisco is attracting nationwide attention for the quality of its land planning, architectural design and construction methods. He's giving the HBI a vigorous leadership.

**HBI PERSONALITIES**—At the Home Builders Institute Conference a number of the most famous names in home building and sub-dividing were present. They were men whose names have stood for quality and integrity, coupled with an intelligent approach to the job. They are the kind that the industry needs more of to build up its reputation with the public. The following are a few outstanding ones.

**J. C. NICHOLS**—He is now an important official of the Office of Production Management in charge of purchasing materials. He is living in Washington and giving 18 hours a day to defense. One of his boys is a buck private stationed in the army Nichols is buying materials for. He gave a stirring talk on the need for action in defense and urged private builders to speed up the building of defense housing.

(Someone remarked that Nichols provides "everything the soldier sleeps under, over or with.")

**HUGH POTTER**—Looking as young and vigorous as ever, Hugh Potter, of Houston and River Oaks fame, conducted the Builders' Problem Dinner. River Oaks has just celebrated its 18th year with a handsome 100-page anniversary book which gives a remarkable picture of a remarkable development which continues to flourish on a high plane of quality planning and management.

**E. L. CRAIN**—Another famous Houston builder, E. L. Crain, described his Garden Oaks project and showed colored slides of some of the finest looking small homes I have ever seen. He has sold a large number of houses under FHA Title 1, Class 3, with a down payment of only $195. **The striking feature of this sales plan is that the lot is sold on a 31-year lease-hold basis.** Interest on the price of the lot is paid at 6 per cent. When the $2,500 FHA mortgage is paid off the owner can then, if he desires, pay for the land.

**TITLE I BUILDING WITH LEASE-HOLD**—With FHA Title 1 mortgages on new homes increased to $3,000, many builders at the HBI Conference were talking about building under this plan, which cuts red tape to a minimum. **They are planning to sell the land on a lease-hold basis** according to plan used by E. L. Crain of Houston.

A typical setup of a Title 1 lease-hold plan—as figured out by one prominent builder—is as follows:

| | |
|---|---|
| Cash payment | $200 |
| FHA Title 1 mortgage | 3,000 |
| Land | 600 |
| Total valuation | $3,800.00 |
| Monthly mortgage payment (15 years) | $24 90 |
| 6% interest on land sold under lease-hold | 3.00 |
| Taxes | 5.00 |
| Fire insurance | .40 |
| Total monthly carrying charges | $33.30 |

**The lease-hold, running for 31 years and paying 6 per cent interest constitutes a prime investment and can be sold or held by the builder.** This is an idea worth looking into in your community.

**BUSY BUILDERS**—All of the builders at the HBI convention reported booming business. **Alfred D. Cole,** of Scarsdale, N. Y., and Hingham, Mass., has several new projects under way, one of which, Bradley Woods, is described in this issue. **Charles S. Wanless,** genial and progressive builder of Springfield, Ill., reported more volume in his town than he cares to handle. **Waverly Taylor** of Washington is starting an additional group of houses in the $16,000 and up class, and his attractive wooded development, Dumbarton, continues to flourish. **Joseph W. Davin,** of Whatley, Davin & Company of Jacksonville, whose several large home communities are worth a special visit to Florida to see, was on hand and builders were interested in the attractive 12" by 18" book of home designs he uses in his selling.

**INDIAN SIGN ON INDIAN HEAD**—Labor unions seem to be doing their best to delay defense housing construction at the 600-home project for workers at the Indian Head, Md., naval power plant. Government officials are experimenting there with a number of different prefabricated house systems. Typical of the trouble encountered was that in connection with a new type of steel house which in the early stages was being built with carpenter labor. **One day the steel erectors decided that this was their job. The carpenters were all thrown off the job and steel workers at a much higher scale moved in.** The builder in this case has a contract at so much per house, and it will be tough on him, considering the higher scale and the fact that he has to train an entire new crew.

A few other difficulties are the fact that the plumbers for some reason insist on laying the concrete drain pipe, and common laborers were threatening to strike because of it. Also, electricians are working 6 hours, painters 7 hours, and some of the other trades 8 hours, to add to the general confusion. **There's a desperate need for housing for the naval workers nearby, yet these union leaders refuse to co-operate.** Government officials would like to see a double shift day, but the unions have thus far refused.

**PAPER CONCRETE FORMS**—Of all the new stunts observed at the Indian Head project, one of the most interesting was the use of heavy building paper as a form for concrete piers. It sounds peculiar, but it seemed to work there for the small concrete piers used in these small houses.

**HOME, PEACE AND SECURITY?**—The chatty, homelike scene below was photographed one fine spring morning recently at Braillard and Friedrichs' Blue Mountain Farms development in New Jersey, and it permits us to make a few remarks on the effect of the war fever on home building.

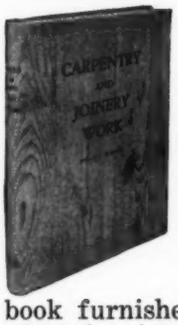
Certainly the desire for security is a big factor in home buying. A large number of builders tell me that they are getting a high percentage of all-cash buyers, especially in the higher

*(Continued to page 96)*

**HOME, peace, domestic tranquility—but how much longer?**

# AMERICAN BUILDER BOOKS

## Carpentry and Joinery Work



By Nelson L. Burbank

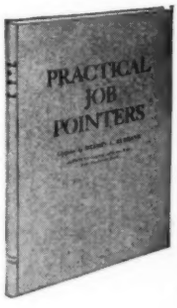
Designed as a trade school text and presenting the cardinal principles of present day dwelling construction with the related studies of architectural drawing, carpentry mathematics, business English, applied science, civics and first aid, this book furnishes the basis of a well rounded education in carpentry work. The technique of steel frame and sheet metal siding construction is explained in addition to the standard methods of wood construction.

### Contents

Tools and Equipment—Tool Boxes—House Plans—Excavations—Foundation Forms—Foundations—Sills — Girders — Floor Joists — Sub-Flooring — Outside Framed Walls — Inside Framed Walls — Plumbing Framed Work — Sheathing Walls — Ceiling Joists — Roof Framing—Roof Sheathing—Cornices—Roofing —Porch and Bay Framing—Exterior Wall Covering —Interior Wall Covering—Stairs—Interior Trim—Windows—Doors—Hardware—Closets and Shelving—Finish Flooring—Finishing—Index.

1940. 3rd. 286 pages, 600 illustrations, 9 x 12, cloth, $3.00.

## Practical Job Pointers



Compiled by Nelson L. Burbank

Job pointers, kinks, short cuts and new methods of doing old jobs are described and illustrated. Some 600 ideas and modern methods of doing various jobs, as worked out by men in the building industry have been brought together and classified. They have appeared in the "Job Pointers" section of *American Builder and Building Age.*

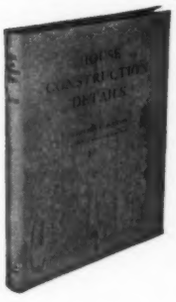
The drawings are to scale. A seven-page index lists each item by its title and many are cross-referenced by subject. This enables quick reference being made to time, money and effort saving methods of doing all kinds of building jobs.

### Contents

Use and Care of Tools—Workbenches and Attachments—Portable Equipment—Excavations; Foundations; Forms—Sills; Girders; Joists; Sub-Flooring—Exterior Wall Construction; Inside Wall Framing—Exterior Wall Covering—Roof Construction; Bay Construction; Roofing—Cornices and Porches—Interior Wall Covering; Interior Trim—Steps; Stair Construction—Windows—Doors—Closets; Shelves; Built-in Equipment—Finished Flooring—Painting; Finishing—Screen Repairing; Screens—Sanitary Equipment—Electrical Wiring—Scaffolds; Ladders; Hoists—Garage Doors—Short Cuts in Laying Out Work.

1940. 2nd. 130 pages, 600 illus., 9 x 12, cloth, $2.00

## House Construction Details



By Nelson L. Burbank

*Formerly Instructor, Building Vocational High School, Cincinnati, Ohio*

Builders will find this book particularly helpful when making changes in a set of stock plans and when planning alterations. By referring to the detailed cross-index they can quickly locate construction details and photographs of the finished work for any part of a house. It shows the use of all modern building material. The layout of these details is in accordance with standardizations recommended by housing authorities wherever such have been established.

Many of these scale drawings and photographs have appeared in *American Builder and Building Age.* Step-by-step procedure is shown with just enough text to explain general principles. The various chapters are presented in construction sequence, from foundation to finish.

1940. 320 pages, 1,500 illustrations, 9 x 12, cloth, $3.00.

## Simplified Carpentry Estimating

By J. Douglas Wilson

*Formerly Head of the Building Trades Department, Frank Wiggins Trade School, Los Angeles, California*

and

Clell M. Rogers

*Mathematics Instructor, Venice High School, Venice, California*

Explains as simply as possible how to "take off" from a set of plans and specifications a bill of material for a frame house. Rules and methods for making accurate building material lists are described and illustrated. Simple arithmetic methods are given for accurately estimating all costs. Helpful tables are included.

Much of this material originally appeared in a series of articles in *American Builder and Building Age* entitled "How to Estimate Accurately."

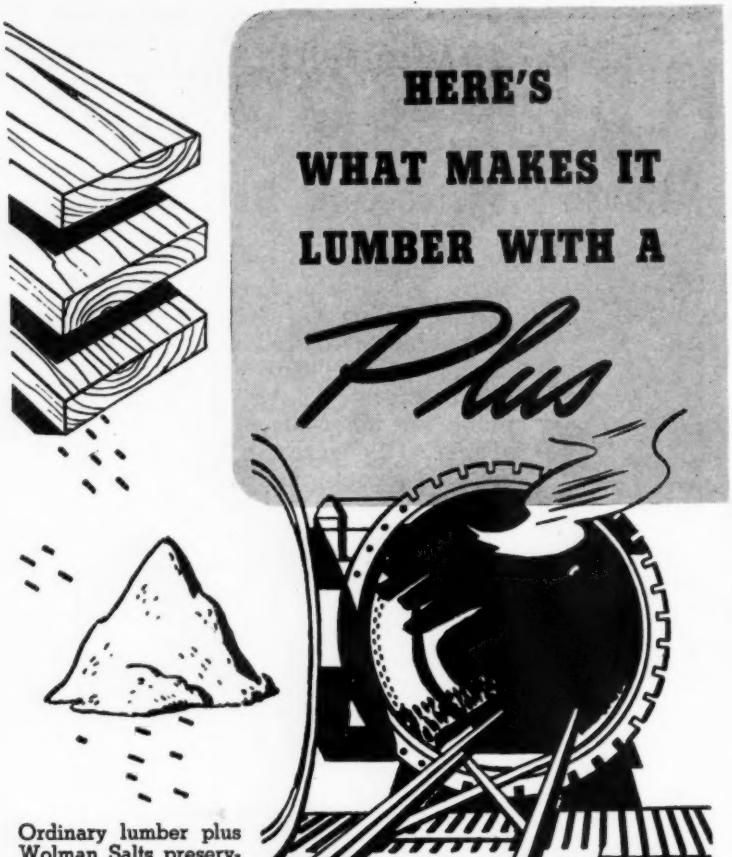
### Contents

Estimating Fundamentals—Foundation Material—Framing—Exterior Finish—Interior Finish—Hardware—Building Information and Tables—Index.

1940. 208 pages, 71 illustrations, 5 x 7, cloth, $2.50.

**AMERICAN BUILDER and BUILDING AGE**

**30 Church Street** **New York, N. Y.**



HERE'S WHAT MAKES IT LUMBER WITH A *Plus*

Ordinary lumber plus Wolman Salts preservative plus vacuum-pressure impregnation.

Take ordinary lumber, impregnate it with Wolman Salts* preservative driven deep into the wood, and that's Wolmanized Lumber*. Proof against spoilage by rot and termite attack; lumber with a plus.

It's no simple dipping treatment, this Wolmanizing process. The wood is sealed in large steel cylinders and subjected to alternate vacuum and pressure, causing it to become deeply saturated with the preservative. Washing-out or leaching is prevented by "fiber fixation."

Methods are scientifically controlled and the products of the nineteen Wolmanizing plants throughout the country are checked by one central laboratory. Uniformity of product is thus assured.

Thus treated, the lumber is clean, odorless and easy to handle. It can be painted. It is distributed through retail lumber dealers under the one trade name—Wolmanized Lumber. AMERICAN LUMBER & TREATING COMPANY, 1645 McCormick Building, Chicago, Illinois.

*Registered Trade-Mark

*Wolmanized* **LUMBER**

WOLMANIZED CERTIFIED PROTECTED AGAINST DECAY & TERMITES A.L.&T.CO.


## On & Off the Record

*(Continued from page 94)*

priced brackets. **These people want to put their money in something they can live in and use—and there's nothing better than a home of your own.**

Strangely enough, reports from many sources indicate that the livest markets in some areas are in houses under $5,000 and over $10,000. The first class are workers who are feeling the war prosperity. The second class are the well-to-do people looking for security. What about the middle class who should be buying $5,000 to $10,000 houses? Well, friends, they are the ones who are taking it on the chain. **They're the ones who get the big squeeze between rising prices and fixed salaries—and they're the ones who will bear the brunt of the tax burden.**

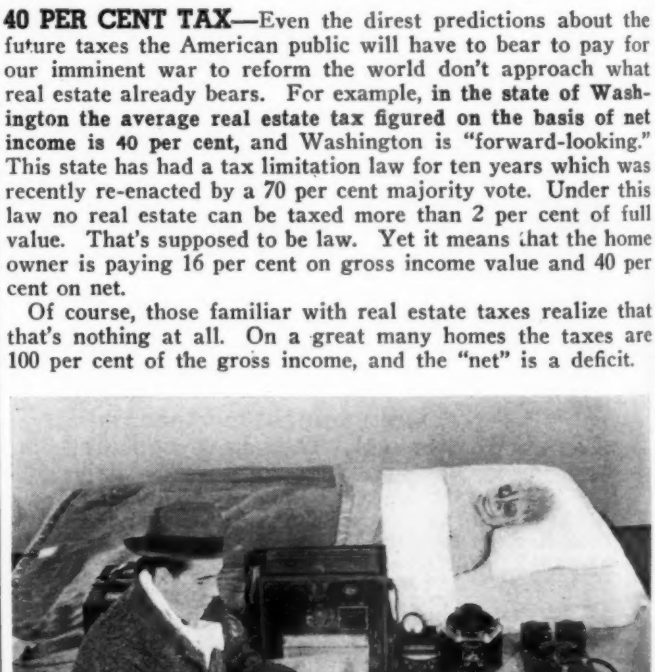
Better take a look at the picture of peace and domestic tranquility on the preceding page, in which even the dog is enjoying life. It may be a view of a class about to be liquidated by an unwanted war to reform the world.

**PRICE CUTTERS GIVE POOR SERVICE**—One reason why chiselers, price cutters and fly-by-nights continue to get far too much business in the building field is that unsuspecting buyers don't realize the importance of service and a lasting guarantee. **A good contractor and a good workman has to include in his price something to cover the cost of coming back as often as may be necessary to assure a thoroughly satisfactory job.** And believe me, that costs money.

Quality builders should use the service angle more in convincing customers that a little extra investment is worth the price. Point out that mechanical equipment especially has to be serviced for a long time, and that on practically every important operation in connection with the home unavoidable defects may occur later which a responsible firm will correct. He can do this because he allows for this indispensable service in his overhead.

**40 PER CENT TAX**—Even the direst predictions about the future taxes the American public will have to bear to pay for our imminent war to reform the world don't approach what real estate already bears. For example, **in the state of Washington the average real estate tax figured on the basis of net income is 40 per cent,** and Washington is "forward-looking." This state has had a tax limitation law for ten years which was recently re-enacted by a 70 per cent majority vote. Under this law no real estate can be taxed more than 2 per cent of full value. That's supposed to be law. Yet it means that the home owner is paying 16 per cent on gross income value and 40 per cent on net.

Of course, those familiar with real estate taxes realize that that's nothing at all. On a great many homes the taxes are 100 per cent of the gross income, and the "net" is a deficit.



**MAGGIE'S ELECTRIC UNDERWEAR—Shown above is "Maggie," a bedridden dummy maintained on the roof of the General Electric factory at Bridgeport, Conn., for purely scientific purposes. She not only has an electrically heated blanket, such as was mentioned in this column recently, but wears an electrically heated suit of underwear such as G-E is making for U. S. aviators.**

**METROPOLITAN AREAS**—When builders from different cities get together they usually argue about which town did the most home building. Well, the arguments are settled in a report by the Bureau of Labor Statistics, just released. **The Los Angeles metropolitan area led all others in the U. S. in single-family home construction in 1940 with a total of 27,972.** New York City, including its suburbs and Northeastern New Jersey, was a runner-up with 20,304. Here are the ten leaders:

| | | 1-family dwellings | Multi-family dwellings |
|---|---|---|---|
| 1. | Los Angeles, Calif. | 27,972 | 6,297 |
| 2. | New York, N. Y.-Northeastern New Jersey | 20,304 | 30,248 |
| 3. | Detroit, Mich. | 15,435 | 272 |
| 4. | San Francisco-Oakland, Calif. | 11,189 | 874 |
| 5. | Chicago, Ill. | 9,586 | 157 |
| 6. | Philadelphia, Pa. | 7,443 | 1,558 |
| 7. | San Diego, Calif. | 6,190 | 927 |
| 8. | Washington, D. C. | 5,024 | 5,551 |
| 9. | Boston, Mass. | 4,292 | 1,357 |
| 10. | Cleveland, Ohio | 4,086 | 737 |

The metropolitan areas used in this study are the same as used by the U. S. Census, and include numerous small suburban towns within the trading radius. **The total number of single-family homes built in the 96 metropolitan areas of the country, including 1,000 smaller suburban towns, was 200,349. This amounts to approximately 46½ per cent of the total number of nonfarm one-family homes built last year.**

In other words, while metropolitan areas are important, more homes are actually built in the smaller towns and rural areas.

**PUBLIC VS. PRIVATE DEFENSE HOMES**—Private home builders have been hanging up some 12-year records in home building in defense areas. **More than 100,000 have been built or started during the first three months of this year in defense areas alone.** Let me repeat that these are **privately built homes built without subsidy** or any government assistance except insurance by FHA, which, incidentally, is on the whole doing a bang-up good job, all told.

Contrasting this private work with defense housing being constructed with public funds, it becomes immediately apparent that private building will do by far the bulk of the required work this year. Total allocations of public funds for defense housing had reached 87,260 units on May 3. Of this number, 58,542 were under contract, and only 9,604 had been completed. If all the 87,260 defense homes built with public funds are completed this year, which is doubtful, they will still amount to only a small portion of the total home building program for 1941, which now looks as though it will exceed preliminary estimates of 625,000 to 650,000 units.

**FUEL SHORTAGE?**—There's real danger of a fuel shortage in some parts of the country this coming winter, and some builders are having a tough time deciding what kind of heating equipment to install in view of it. The outlook for oil in the Eastern areas is bad. **Most of it comes in by tanker—probably more than 90 per cent—and the government has been grabbing off tankers right and left lately for Navy use and for aid to Britain.** Pipe lines aren't adequate and railroad tank cars are scarce. With the coal strike settled, the danger of a shortage of this type of fuel is not great, unless railroads become so loaded with defense traffic they can't handle it, which doesn't appear likely yet. Gas utilities shouldn't run into trouble unless certain essential items run short.

Smart operators say the safest thing is to install a plant that can use several types of fuel, or in which in a pinch the home owner can stoke his old furniture.

**FHA AND PRICE INCREASES**—I still hear frequent reports that many FHA evaluators stubbornly refuse to admit that there have been any increases in building costs. A good many builders who had been making a valiant effort to continue building low-cost houses have simply given up. It was tough to break even before, and now that costs have gone up sharply

*(Continued to page 98)*

"OVER-THE-TOP" DOOR EQUIPMENT

EASILY APPLIED TO STANDARD, STOCK DOORS

OR

*Specially Built*

LARGE, HEAVY DOORS

In addition to being adaptable to practically every type of vertical door, No. 78 "Over-the-Top" Door Equipment offers these other outstanding advantages: requires only 2¼" headroom • friction brake prevents slamming • extremely low cost installation • equipped with automatic opener • adjustable to various size and weight doors • holds door inside building when open • equipped with automobile-type, chrome-plated handle-lock. These features, plus low first cost, have made "Over-the-Top" the most popular equipment for "upward acting" doors. Write for further information.

FRANTZ MANUFACTURING CO.

Dept. A. B., Sterling, Ill.

FRANTZ

*Guaranteed* BUILDWARE

## On & Off the Record

*(Continued from page 97)*

all along the line it simply wasn't worth the trouble continuing unless the FHA mortgage amount was increased. Who is supposed to absorb these increases? There certainly is not enough profit so that the builder can.

Another persistent criticism of FHA appraisals is that **they are frequently based on the lowest prices that some sharp-buying, chiseling, gyp operator in a community has established—even though that operator may shortly go broke because he is selling at less than cost.** It seems to me that the valuations put on new homes by FHA should always take account of quality workmanship and quality equipment.

**A GREAT BUSINESS**—Being an operative builder is a great business. It's lots of fun and you get rich quick. Of course, you have to have a few qualifications:

A. MONEY—You must have it or be able to borrow it or get it from your wife or mother-in-law.

B. FRIENDS—If you don't have friends in the right places, and lots of them, don't try this game.

C. POLITICS—This should come under "B" above, but to make it clear; running a building operation involves codes, utilities, public improvements and getting along with the unions. That's politics.

D. PERSONALITY—People have to like you or they won't like your houses.

E. PUSH—18 hours a day aren't enough to get all the details taken care of, and you're the only guy that can do it.

F. BUYER—Close buying is an art you'll have to master.

G. ORGANIZER—You have to keep 28 different crews and subs from getting in each other's way, keep track of purchases, sales, FHA commitments, contracts, and a thousand small items like getting a can of Eleanor Roosevelt blue enamel for the front door.

H. ARTISTS—You have to be able to choose colors, pick wallpaper, hardware, lighting fixtures and tile for the bathroom in the best of taste—and something people will like. You have to be an architect or be able to tell an architect how to design a house that, in addition to being good looking, will be inexpensive to build and will quickly sell.

I. MASTER BUILDER—And then, of course, you have to know something about construction methods, which is slightly complicated by the fact that every day there are 428 new items of material and equipment put on the market which you are supposed to quickly embrace.

**It's a cinch!**

**RENT CONTROL PROPOSED**—State legislation to control rents has been recommended by Harriet Elliot, Consumer Commissioner of the National Defense Advisory Commission, in cooperation with Leon Henderson. Creation of a State Rent Commission is recommended with the following powers:

(1) To investigate, conduct hearings and make findings of fact on housing and rental conditions throughout the state as affected by and as affecting the national defense program;

(2) To try to prevent unjustifiable rent increases by means of publicity or by negotiation with parties concerned;

(3) To declare an emergency in any region of the state and to determine the boundaries of emergency rent regions; the law is to be administered by regional boards appointed by the governor;

(4) To establish the normal rent in such regions and the classification to which such rents apply.

To avoid interfering with construction of needed new housing, the suggested state bill calls for exemption of newly constructed dwellings.

While this seems a moderate approach to the subject, experience has shown that rent control is a very difficult matter and usually does more harm than good.

**Agree or Disagree?—Say So**

**"On and Off the Record" is a column of opinion and personal comment. Readers may agree or disagree with the views expressed—and if you do, SAY SO in a LETTER.**

The Importance of a Dot on a Map
OHIO
OHIO WHITE FINISH LIME
The world's purest deposit of dolomite rock covers an area not larger than a dot on the map of Northwestern Ohio.
Here, in the heart of this deposit, are our quarries and modern 36-kiln plant where we manufacture the original Ohio White Finish and its famous twin, Hawk Spread.
In this business, our day-to-day prime mover is the desire to supply architects, plasterers and dealers with superior finishing limes upon which they can always depend.
That we have succeeded is evidenced by millions upon millions of square yards of beautiful walls and ceilings on which Ohio Lime Products have been used .. an enduring testament to our defense of better buildings.
The Ohio Hydrate & Supply Co.
Woodville, Ohio
Always packed in Red Zig Zag Bags

# REVIEW of the NEWS

## *Statistics, Associations, Agencies*

### April Home Building up 23 Per Cent

RESIDENTIAL construction in 37 eastern states, according to F. W. Dodge figures for the month of April, showed an even greater increase over the same period of 1940 than had been predicted a month ago. The rise amounted to about 23 per cent.

Statistics for the four classes of construction are as follows:

| 37 Eastern States | April, 1941 | April, 1940 | March, 1941 |
|---|---|---|---|
| Residential | $166,462,000 | $135,420,000 | $147,859,000 |
| Non-Residential | 143,304,000 | 88,821,000 | 201,458,000 |
| Public Works | 71,426,000 | 62,881,000 | 84,592,000 |
| Utilities | 25,483,000 | 13,382,000 | 45,994,000 |
| Total | $406,675,000 | $300,504,000 | $479,903,000 |

### New Dwellings, 1920-40

WITH 540,000 new dwelling units provided for nonfarm families, residential construction during 1940 continued its upward climb of the last 5 years, the U. S. Bureau of Labor Statistics reports in the "Monthly Labor Review" for April. The 1940 total is more than twice the annual average of 220,000 units for the preceding decade, but falls short of the 703,000 average for the decade of the 1920's. The last year of greater activity was 1928, when new family accommodations totaled 753,000 units. From that point it dropped to 509,000 in 1929 and then fell to a depression low of 54,000 units in 1933.

The recovery in residential construction is even more marked when 1-family dwellings alone are considered. Of the units provided in 1940, 425,000 were of the 1-family type, a number which compares favorably with the 436,000 1-family units built in 1928. Trends in 2-family and multifamily units do not follow closely movements in volume of new 1-family houses. Thus although recovery in construction of 1-family dwellings has proceeded so well, 1940 totals for 2-family and apartment units are still less than half the comparable 1928 figures. The great fluctuations from year to year in number of new dwelling units provided in nonfarm areas since 1920 are shown in table 1.

**Table 1.—Number of New Dwelling Units in Nonfarm Areas, 1920 to 1940**

| Year | Total nonfarm | Area | | [1] Type of dwelling | | |
|---|---|---|---|---|---|---|
| | | Urban | Rural nonfarm | 1-family | 2-family[2] | Multi-family[3] |
| 1920 | 247,000 | 196,000 | 51,000 | 202,000 | 24,000 | 21,000 |
| 1921 | 449,000 | 359,000 | 90,000 | 316,000 | 70,000 | 63,000 |
| 1922 | 716,000 | 574,000 | 142,000 | 437,000 | 146,000 | 133,000 |
| 1923 | 871,000 | 698,000 | 173,000 | 513,000 | 175,000 | 183,000 |
| 1924 | 893,000 | 716,000 | 177,000 | 534,000 | 173,000 | 186,000 |
| 1925 | 937,000 | 752,000 | 185,000 | 572,000 | 157,000 | 208,000 |
| 1926 | 849,000 | 681,000 | 168,000 | 491,000 | 117,000 | 241,000 |
| 1927 | 810,000 | 643,000 | 167,000 | 454,000 | 99,000 | 257,000 |
| 1928 | 753,000 | 594,000 | 159,000 | 436,000 | 78,000 | 239,000 |
| 1929 | 509,000 | 400,000 | 109,000 | 316,000 | 51,000 | 142,000 |
| 1930 | 286,000 | 224,000 | 62,000 | 185,000 | 28,000 | 73,000 |
| 1931 | 212,000 | 164,000 | 48,000 | 147,000 | 21,000 | 44,000 |
| 1932 | 74,000 | 56,000 | 18,000 | 61,000 | 6,000 | 7,000 |
| 1933 | 54,000 | 40,000 | 14,000 | 39,000 | 4,000 | 11,000 |
| 1934 | 55,000 | 41,000 | 14,000 | 42,000 | 3,000 | 10,000 |
| 1935 | 144,000 | 106,000 | 38,000 | 110,000 | 6,000 | 28,000 |
| 1936 | 276,000 | 199,000 | 77,000 | 203,000 | 13,000 | 60,000 |
| 1937 | 286,000 | 205,000 | 81,000 | 219,000 | 15,000 | 52,000 |
| 1938 | 347,000 | 246,000 | 101,000 | 261,000 | 17,000 | 69,000 |
| 1939 | 465,000 | 342,000 | 123,000 | 351,000 | 28,000 | 86,000 |
| 1940 | 540,000 | 386,000 | 154,000 | 425,000 | 37,000 | 78,000 |

[1]Data for 1920-35 are from National Bureau of Economic Research, data for 1936-40 from Bureau of Labor Statistics.
[2]Includes 1- and 2-family dwellings with stores.
[3]Includes multifamily dwellings with stores

### Relation of Permit Valuation to Contract Price and Selling Price

THE CONTRACT price, on the average, was 16 per cent higher than the value declared in taking out permits for one-family houses in 1938, according to reports of the Bureau of Labor

*(Continued to page 100)*

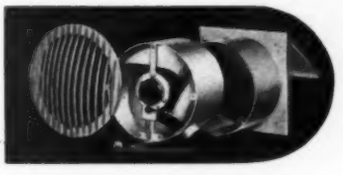

I HELP SELL HOUSES... AND KEEP THEM SOLD!

NATIONALLY ★ TIME ★ ADVERTISED

THE NEW

ILGVENT ... *modestly priced for the smaller kitchens!*

Yes, it's a genuine ILG . . . at a price that will enable you to include one or more of these compact new streamlined ventilating units in every new house or apartment you build . . . kitchens, bathrooms or rumpus rooms! It's a plus-feature that will help sell houses . . . with plus-performance that will help keep them sold!



EASY TO INSTALL

Two-piece telescopic cabinet fits all wall thicknesses. Demountable polished aluminum grille. Chain operated weather-tight door. Guaranteed capacity 350 C.F.M.

WRITE TODAY for Bulletin A-1040 showing complete ILG Kitchen Ventilator Line. Address factory or consult phone directory for local ILG branch office.

ILG ELECTRIC VENTILATING CO.

2852 N. CRAWFORD AVENUE, CHICAGO, ILL.

*Offices in 43 Principal Cities*

ILG

*Vitalized* VENTILATION

AND AIR CONDITIONING

★ AIR CHANGE... NOT JUST AIR MOVEMENT!

# Wanted a MAN IN YOUR CITY

TO BE A MANUFACTURER IN AN ESSENTIAL INDUSTRY. Defense Work is placing a burden on the building industry. Lumber, steel and other materials are getting scarce and expensive. There is a great switch to masonry.

DUNBRIK-DUNSTONE meet today's building problems with low cost building units made from local raw materials, plentiful and low priced. DUNBRIK-DUNSTONE builds better buildings, yet brings permanent construction down to frame price levels.

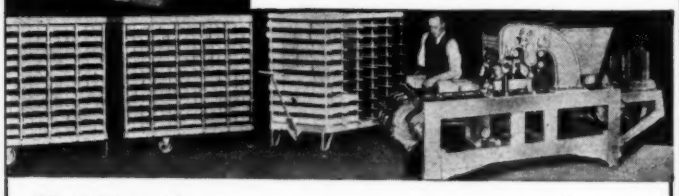
WE WILL EQUIP YOU with exclusive line-production machinery to manufacture these modern building units at lowest cost. Equipment sold on easy payments and costs but fraction of other processes of equal capacity.

WE WILL SUPPLY YOU with new processes and formulas to manufacture these products in full range of colors, shades and textures. Multiple size units will enable your builders to effect a saving of as much as 1/3 in permanent, fire-safe industrial construction and low cost housing.

WE WILL GRANT YOU manufacturing franchise covering your locality, protecting your market, business and future. We will supply you complete engineering and advertising service for rapid expansion of your business.

YOUR EARNING POWER AND FUTURE. Present manufacturers have paved the way for you. Starting with limited capital they have proved the proposition for you with hundreds of millions of dollars worth of sales for Government, municipal and private construction.

YOU SHOULD INVESTIGATE this exceptional opportunity while your territory is still open. Fill in and return coupon today. No obligation.



W. E. Dunn Mfg. Co.,
450 W. 24th St.,
Holland, Michigan.

Show me through your free books how I can own an exclusive DUNBRIK-DUNSTONE plant in my territory and help today's big need of better building for less.

Name_____

Address_____

City_____ State_____


## Review of the News

*(Continued from page 99)*

Statistics from builders (both contractors and operative builders) in eight cities. In the case of operative builders, construction cost, excluding profit and overhead, was used. In no case was the value of the land included.

The selling prices of completed one-family homes in the eight cities, on the average, were 42 per cent greater than building-permit valuations. Selling prices reported to the Bureau include profit and overhead costs, sales commissions, land costs, and all other items entering into the cost to the purchaser of the entire property.

Ratios of both contract price and selling price to permit valuation vary from city to city. This may be accounted for in part by differences in the building ordinances, in their enforcement, in the uses to which tax assessors put the information filed in permit applications, and in many other local practices of both city officials and builders. In Washington, D.C., for example, the average ratio of contract price to permit valuation was among the lowest, but the ratio of selling price to permit valuation was next to the highest of the eight cities.

**Contract Prices and Selling Prices as Percentages of Permit Valuations, of 1-Family Houses Built in 8 Cities in 1938**

| CITY | Percent of permit valuations | |
|---|---|---|
| | Contract prices | Selling prices |
| All cities | 116.0 | 142.0 |
| Atlanta | 124.0 | 136.0 |
| Boston | 126.0 | 133.0 |
| Cleveland | 123.0 | 143.0 |
| Dallas | 111.0 | 134.0 |
| Indianapolis | 116.0 | 131.0 |
| Philadelphia | 110.0 | 130.0 |
| San Francisco | 129.0 | 172.0 |
| Washington | 114.0 | 160.0 |

The Bureau is obtaining data on the relationship between contract prices, selling prices, and building permit valuations in some 50 additional cities. The 50 sample cities were chosen to represent the various geographic areas, size groups, and locations inside and outside of metropolitan areas. The data will be tabulated by scale of building operations and by value of permit, as well as by the factors listed above in describing the sample. Separate ratios will be computed for contract-built homes and for those speculatively built.

## Home Costs Increase Slightly

IN MARCH for the third consecutive month construction costs for a standard house continued to rise, though at a diminished rate, the economists of the Federal Home Loan Bank Board in Washington, D.C., have reported. March costs were 7.9 per cent above those of March, 1940. This is the average picture for the entire nation, although in particular communities there may be variations either way.

From February to March the increase was only 2/10 of one per cent as compared with a rise of 8/10 of one per cent from January to February and 1.1 per cent from December to January.

The March index stood at 110.4 with the average month of the 1935-1939 period used as a base of 100. Increases in prices of building materials and wages of labor were equal in March, it was stated.

## Explains Road to Lower Fuel Costs

THE SHORT-CUT to "more house" for the same monthly housing budget is to reduce household operating costs. This is the theme of a new educational program being conducted by the Iron Fireman Manufacturing Co., Cleveland, O., and Portland, Ore. The program is being addressed both to the general public and to the building industry.

Keynote of the campaign is a bulletin, "How to Build or Buy a House for Low Operating Costs," which contains no propaganda for the sponsor's products. This emphasizes: "The more you can save in *operating* costs in future years, the more you can spend *now* for modern conveniences, such as an automatic heating system and an all-electric kitchen."

Iron Fireman lists these major elements of operating costs

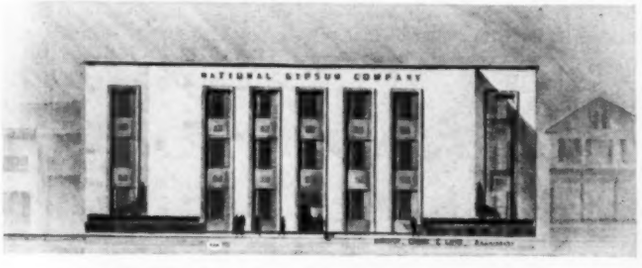
in a typical fully-modern home: automatic heat; taxes and fire insurance; repairs and maintenance; electricity, and water. "The biggest item of all is heat," it is stated, "and fortunately this is the *one* item that you can *do* something about."

A $5 saving in fuel costs will allow another $5 to be added to the monthly mortgage payments. Under FHA terms, this slightly larger payment will enable the family to have an extra $850 for "first cost." This $850 can be spent for an automatic heating plant and for additional electric kitchen equipment, it is explained.

## New National Gypsum Office Building

A THREE-STORY building of stone, steel and concrete will be erected this summer on the site of Calvary Presbyterian Church, 315 Delaware Avenue, Buffalo, to house the general offices of the National Gypsum Company. Work of razing the 79-year old Gothic church already has started, and the new structure will be ready next fall.

President Melvin H. Baker said his company needs more room because of rapid expansion and added that the large, elaborate building, having an effective floor space of some 30,000 square feet, will be built. Latest refinements in air and light conditioning and sound control will be combined in modern design to offer maximum functional and aesthetic values, according to the architects, Backus, Crane & Love.




**NATIONAL Gypsum's new Buffalo office building.**

## Shreve Heads A.I.A.

RICHMOND H. SHREVE, prominent New York architect identified with the design and execution of many notable buildings, including the Empire State, was elected president of the American Institute of Architects at the final session of the Institute's seventy-third convention in the Yosemite Valley, California. He succeeds Edwin Bergstrom of Los Angeles. Mr. Shreve is a member of the architectural firm of Shreve, Lamb and Harmon.

The Institute reelected Dean Walter R. MacCornack of the Massachusetts Institute of Technology as vice president; Charles T. Ingham of Pittsburgh as secretary, and John R. Fugard of Chicago as treasurer.

## New "Low" for Housing Cost

THE LOWEST cost low-rent slum clearance housing project in the northern United States received its first tenants this week, according to a press release from the United States Housing Authority.

The project, Westfield Village, is located at Fort Wayne, Ind. The average net construction cost of the homes is $1,830. This is about 15 per cent less than the previous record for projects in the northern area established in the development of Armistead Gardens in Baltimore where the average construction cost figure was $2,137.

"Net construction cost" represents the cost of building the homes plus plumbing, heating facilities, and electric installations.

For an average shelter rent of $10.83 per month low-income Fort Wayne families will be able to enjoy substantially built homes containing, in addition to bedrooms, a living room, kitchen with dining space, a bathroom, and storage space. Each home has modern plumbing and electrical conveniences, a gas stove for cooking, and heating facilities.

The 120 homes in the project are in twin or row houses built with concrete slab floors, frame walls with asbestos siding, and sloping roofs covered with asphalt shingles. All interiors are plastered.


EVERY JOB A RUSH JOB?

Try Temlok De Luxe

FAST CONSTRUCTION *of smart interiors like this is possible when Temlok De Luxe is used for upper walls and ceilings, as in this smart restaurant. Wainscot is Armstrong's Linowall. Attractive floor is Armstrong's Asphalt Tile. Architect: Clarence Wagner, Williamsport, Pa. Temlok Wholesaler: C. C. Coolbaugh & Co. Dealer: Gehron Construction Co.*

WHEN clients are clamoring for speed, it's pretty irritating to be held up just because plaster takes weeks to dry. Here's a simple way to dodge such delays—and, at the same time, add unusual ***extras*** to your walls and ceilings—try Temlok De Luxe!

Armstrong's Temlok De Luxe is a factory-colored insulating finish which saves valuable building time and money. It is easy to erect and, in new construction, ***replaces plaster and paint or wallpaper.*** Quick installation can be made either with adhesives or with the new Tem-Clips which "float" the insulation against furring strips or joists.

And here are the Temlok extras. Your clients get ***efficient insulation*** and ***unusual decoration*** (there are several attractive, light-fast colors available, in panels, planks, and boards). Temlok also offers ***high light-reflection,*** and effective ***noise reduction.*** Think of it—you include ***all*** these features in ***one*** quick installation, at ***one*** reasonable cost . . . when you use Temlok De Luxe! For complete facts, see "Sweet's," or write now to Armstrong Cork Company, Building Materials Division, 979 Concord Street, Lancaster, Pennsylvania.

**ARMSTRONG'S TEMLOK INSULATION**

De Luxe Interior Finishes • Lath • Sheathing • Hardboards • Monowall

*Owners point with pride—tell their friends—promote your interests*

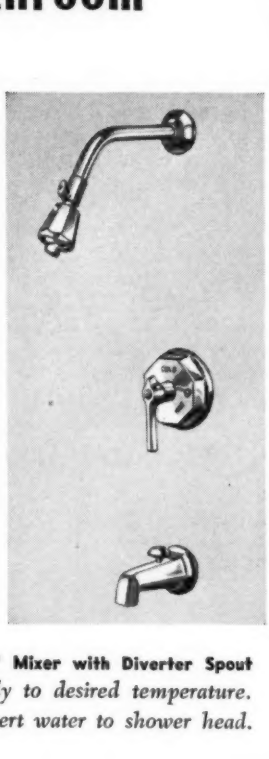
"Times Square"

**brings distinction to the Master Bathroom**

This bath "sells itself" to those who want something new, different, distinctive. Being square (4′x4′), it allows effective use of floor space, as for storage closets and furnishings.

Its practical features add to bathing safety and luxury: easy corner seat, extra standing space, flat bottom, low side, sloping back rest. Net result — better bathing for all the family!

Get all the facts, NOW, about this and other first-quality fixtures and fittings. . . . Kohler Co. *Founded* 1873. Kohler, Wis.



***Another Aid to Ease* — New "TRITON" Mixer with Diverter Spout**
*A single handle mixes water quickly to desired temperature. . . . Knob on spout is raised to divert water to shower head.*

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

## First Pacific Coast Meeting for A.S.H.V.E.

SAN FRANCISCO will welcome the American Society of Heating and Ventilating Engineers for its Semi-Annual Meeting 1941, during the week of June 16th. The Palace Hotel has been selected as headquarters and plans for the meeting are being developed by the Committee on Arrangements of the Society's Golden Gate Chapter—G. M. Simonson, General Chairman.

The reasons for a trip to the Pacific Coast in June are threefold: first, for the Semi-Annual Meeting of the A.S.H.V.E.; second, the 52nd Annual Convention of the Heating, Piping and Air Conditioning Contractors National Association; and third, the Pacific Heating and Air Conditioning Exposition.

There will be several joint functions for the members of both organizations and the Exposition will attract a great many people who are interested in having modern heating, ventilating and air conditioning.

The first business session will be called to order at the St. Francis Hotel on June 16 and this will be followed by a joint get-together luncheon, after which the officers and members will participate in the opening of the Pacific Heating and Air Conditioning Exposition at the Civic Auditorium.

This show will be open for five days and it is expected that 100 manufacturers of the most modern equipment for heating, ventilating and air conditioning will exhibit their products. Manufacturers from 18 states from coast to coast have already taken space and these participating manufacturers will issue 100,000 invitations to those who are interested in seeing the most modern equipment for heating, ventilating and air conditioning service.

There will be many interesting exhibits which will include gas and oil fired furnaces, air conditioning and cooling units, fans and blowers, pumps, instruments, controls, valves, piping and other accessories and specialties.

## Campaign Advises "More Doors and Windows"

IN A NATIONAL advertising program in consumer and trade magazines, beginning in April and May issues, "Ponderosa Pine Woodwork" is offering ideas that should appeal to every architect and builder. They feature well-designed parts of attractive residences, and accompanying plans or isometric drawings show how each illustration is part of an efficient and practical floor plan. Subsequent advertisements will illustrate living rooms, dining rooms, attics, basements and other rooms in the house where doors and windows can make homes more attractive, more convenient, and can contribute greatly to a home's general practicability.

In addition to this program of advertising in magazines, "Ponderosa Pine Woodwork" is also producing a 32-page, 8½ x 11 *"Idea"* Book. This book is called "Open House." It illustrates many ideas for the use of doors and windows, and their contribution, in fact their necessity, insofar as sound planning of each room in the house is concerned. Many interesting photographs have been obtained, and most of them are further defined by the use of small isometric drawings or floor plans to give the reader a complete explanation of how he, too, may plan efficiently through the better use of doors and windows.

## Floor and Wall Tile Survey Released by Tariff Commission

THE UNITED STATES Tariff Commission has issued an economic survey of the floor and wall tile industry in the United States and in other important producing countries. It deals mainly with ceramic or fired clay tiles, which have been the most important kinds of earthen tiles imported into the United States.

The report covers such economic aspects as the effects of tariffs on the trade in floor and wall tiles, problems in marketing, including competition from substitute materials, an analysis of production costs, international trade in tiles, and various other phases of competition. Attention is also given to the classification of tiles and the various processes of manufacture.

A limited number of copies of this report are available for distribution by the Tariff Commission. Copies may also be obtained from the Superintendent of Documents, Washington, D. C., at 25 cents each.

## 39 Years of Turner

H. C. TURNER, founder of the Turner Construction Company and president since its organization 39 years ago, has been elected to the newly created position of Chairman of the Board of Directors of the Company, and in this capacity will continue to be actively identified with its affairs. He has been succeeded as president by J. Archer Turner, former executive vice president.

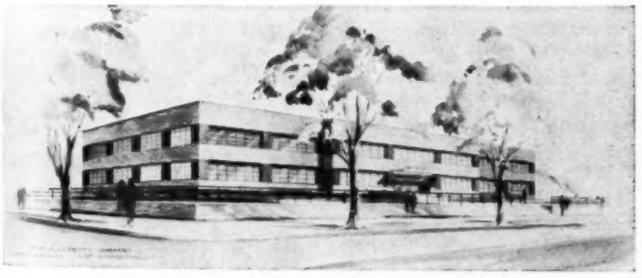
Under the leadership of H. C. Turner, the yearly business of the Company has grown from a total volume of $40,000 in 1902—its first year—to an estimated volume of $40,000,000 in 1941. During this period the Company has completed more than 1600 buildings located in 26 states and possessions of the United States, at an aggregate cost of over $500,000,000. This Company has long been recognized as one of the leading construction organizations in the country and maintains offices in New York, Philadelphia and Boston. At present the Turner Company is constructing many large defense projects for the Government and private industry.

J. Archer Turner, who succeeds to the office of president, is a graduate of Swarthmore College in Civil Engineering and has been identified exclusively with the building industry for the past 35 years. In 1919 he became general superintendent of the Turner Construction Company for the Philadelphia territory. In 1931 he was elected a director of the Company and Vice President in charge of the Philadelphia office, continuing until 1937 when he was assigned to the main office of the Company in New York as chairman of the executive committee and later as executive vice president.

## New Flintkote Office Building

THE FLINTKOTE Company announces the awarding of the contract for the construction of an administration building at its plant at East Rutherford, N. J., for general offices, eastern district sales offices and East Rutherford plant offices.

"This addition to our facilities for sales and general office use is part of a general expansion program involving the recent completion of a plant at Meridian, Miss., to manufacture a line of structural and decorative insulation board products and improvements in many of our other plants manufacturing asphalt and asbestos roofings and sidings, industrial asphaltic products, and paper board products," stated I. J. Harvey, Jr., president, the Flintkote Company.



**NEW administration building for the Flintkote Company.**

The new office building is to house approximately 150 office workers in both general offices and private offices with expansion provided for an increase of 50 per cent throughout general offices. Gross area of the building including basement storage facilities—approximately 28,000 square feet.

The completion date is planned for October 15, 1941.

Building Design—Kenneth H. Ripnen, Architect, New York City.

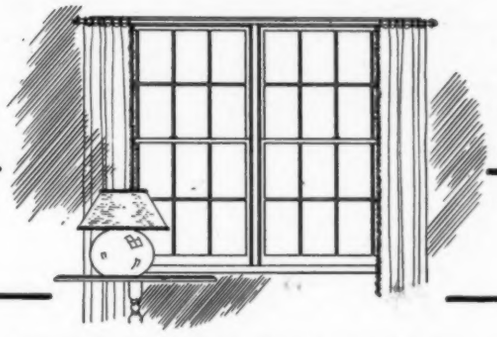
Building Contractor—The Ferber Company, Hackensack, New Jersey.

## H. F. Mayer New Certain-teed Ad. Mgr.

HAROLD F. MAYER has been appointed advertising and sales promotion manager of Certain-teed Products Corporation, New York. He joined the company in 1931 as advertising production manager and, since 1939, has been assistant advertising manager.


TO SAVE MONEY
ON SMALL HOME BUILDING

...THE BEST
*Window Construction*
COSTS LESS



COMPLETE WINDOW UNITS WITH PULLMAN BALANCE CONTROL OFFER THESE ECONOMIES:

***QUICKER, CHEAPER INSTALLATION:*** Window delivered to you complete. Sash fitted to frame. Weatherstrip, balances, glass installed. One labor operation and windows are in.

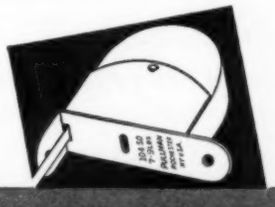
***SIMPLER CONSTRUCTION:*** Plank frame (no weight box) permits modern narrow trim. Lets you insulate right up to window. Eliminates draft usual through weight box and pulley holes. Gives maximum light area for opening size.

***BETTER PERFORMANCE:*** Windows don't stick, stay open or closed at any level.

***LIFETIME SERVICE:*** No adjustments (Pullman units *balance*—do not depend on friction). Factory guaranteed for life of the building.

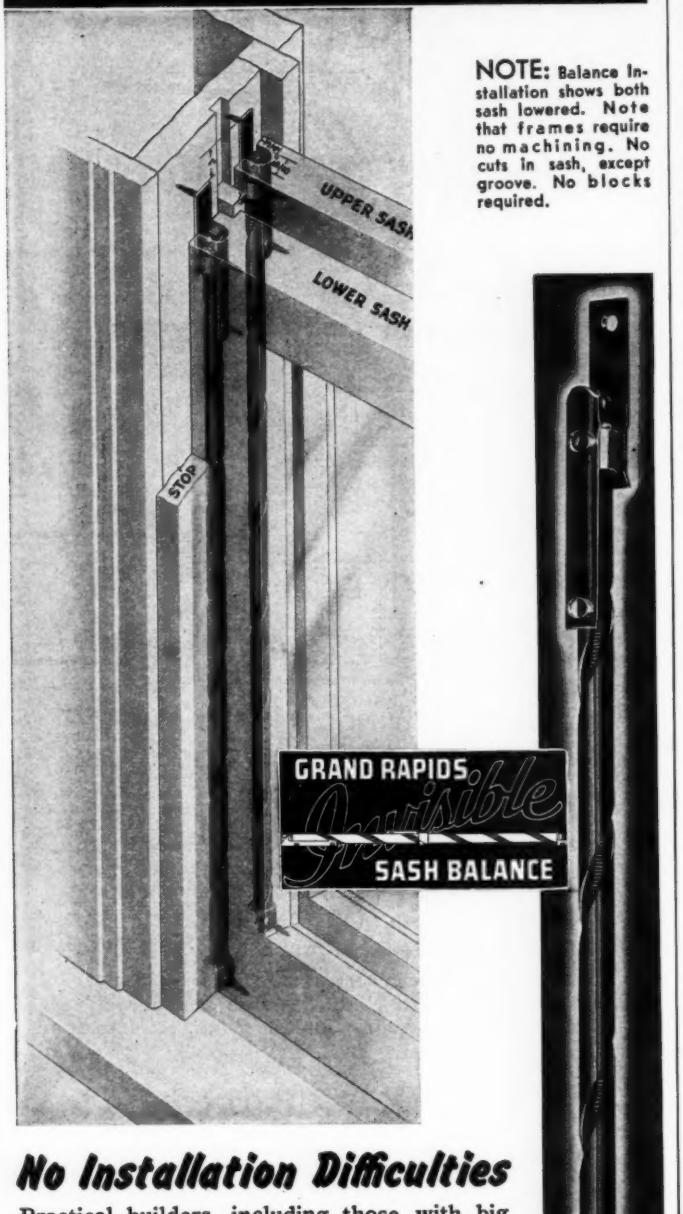
•

*Take your customers to the nearest dealer who features a demonstration unit of a Pullman-Balanced Window. You* see *and* show *the advantages of this modern* low-cost *window construction.*



*Specify Window Units with*
PULLMAN *Sash Balances*

# AS SIMPLE AS CAN BE!




NOTE: Balance Installation shows both sash lowered. Note that frames require no machining. No cuts in sash, except groove. No blocks required.

## No Installation Difficulties

Practical builders, including those with big government defense contracts, say that GRAND RAPIDS INVISIBLE is far and away the easiest of all Sash Balances to install. Complete, illustrated instructions on each carton. Add to that its important advantages in efficiency, durability, ease of adjustment, and actual invisibility, and you have the reasons for the popularity of GRAND RAPIDS INVISIBLE.

## Tensioned and Installed in Sash before Delivery on Job

Your source-of-supply can furnish sash or complete sash-and-frame units with GRAND RAPIDS INVISIBLE Balances tensioned and installed in the sash before delivery, if desired.

*Write for complete descriptive booklet.*

Ask for GRAND RAPIDS INVISIBLE — No. 41-ISB-1

**GRAND RAPIDS**
HARDWARE CO. • GRAND RAPIDS, MICH.
*The Standard of Quality for Over 40 Years*


## Shingle Bureau Launches "Double-Coursing Drive"

A NATION-WIDE "double-coursing drive," patterned after the highly successful red cedar shingle "Over-Roofing Month" which was carried out during 1940, is being sponsored this spring by the Red Cedar Shingle Bureau, Seattle, Wash.

Pivotal figure in this campaign for sidewalls double-coursed with cedar shingles is the retail lumber dealer, who is being offered a variety of sales helps and is being provided widespread consumer publicity. A large brochure, the center spread of which comprises an attractive window display hanger, is being mailed by the Bureau to dealers throughout the country. In addition, such helps as double-coursing blueprints, one- and two-column newspaper mats, and mailing folders are offered. The blueprints, in particular, are proving very effective among the contractor-carpenter clientele of dealers, as they present a practical "how-to-do-it" story.

The entire campaign is being heralded by an advertising barrage directed at both prospective home owners and professional builders, such as contractors, carpenters and architects. Attractive four-color pages in *American Home* and *Better Homes & Gardens* magazines, with a combined circulation of over four million, are devoted to double-coursed sidewalls. In addition there are double-coursing messages in building trades magazines, including *American Builder* and *Architectural Forum.*

According to W. W. Woodbridge, Secretary-Manager of the Red Cedar Shingle Bureau, the current double-coursing campaign has been laid out as a sequel to National Over-Roofing Month and will provide great impetus to demands for new or remodeled double-coursed sidewalls. Woodbridge stated that the many favorable aspects of double-coursing, and especially from the dealer's point of view the fact that it does not require special shingle stocks, will give it great popularity.

## Tuscany Heads Metal Lath Association

ARTHUR J. TUSCANY of Cleveland, Ohio, has been appointed commissioner of the Metal Lath Manufacturers Association, Chicago. For the past six years he had been head of the trade association management firm of Tuscany, Turner and Associates.

Miss M. M. Keating, who has been connected with the Metal Lath Association for a number of years, has been named to the office of Assistant Secretary and Treasurer.

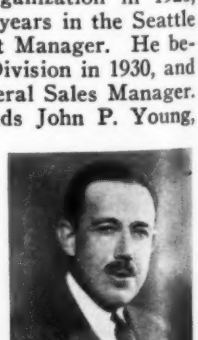
Mr. C. T. Clark, who has been representing the Metal Lath Manufacturers Association in the eastern territory, has joined the central office in Chicago to head the newly established Public Relations Department. Among his other activities, Mr. Clark will serve as editor of *"Metal Lath News."*

## Warnock Heads Armstrong Advertising

THE ARMSTRONG Cork Company has announced the expansion of the functions of the Advertising Department to include all promotional activity, and the appointment of M. J. Warnock as Director of Advertising and Promotion and E. Cameron Hawley as Assistant Director of Advertising and Promotion.

Mr. Warnock joined the Armstrong organization in 1926, spending the following three and one-half years in the Seattle district as a salesman and later as District Manager. He became an Assistant Manager of the Floor Division in 1930, and earlier this year was named Assistant General Sales Manager. In his new position, Mr. Warnock succeeds John P. Young, who has resigned.

Mr. Hawley joined the Armstrong organization in 1927 as a member of the Advertising Department.



**M. J. WARNOCK (left) and E. C. Hawley of Armstrong.**

# LETTERS from Readers on All Subjects

***Facts, Opinion and Advice Welcomed Here***

## Permit Valuation and Construction Costs

Washington, D. C.

To the Editor:

I am sending you a Bureau release presenting the relation of permit valuation to contract price. The release indicates that contract prices were on the average 16 per cent higher than permit valuations. This adjustment factor of 116.0, although based upon reports from only eight cities, can be used as a corrective ratio for total permit valuations. It would not, however, be advisable to use it with permit reports for any single city or small group of cities. The need for these corrective ratios has long been recognized by the Bureau, and we are at present engaged in analyzing ratios reported by nearly 100 cities of 10,000 population and over. As well as can be determined from the present status of this study, the factor 116.0 seems entirely reasonable. The completion of this study within the next few months will make available adjustment factors by city-size group and permit valuation.

It is entirely possible that the exclusion of cities below 25,000 population from Table 5, of the Bureau bulletin, "Residential Construction and Demolition, 1936 to 1938," might change slightly the distribution of dwelling units in one-family houses by permit valuation. I will be able to answer you definitely on that point at the completion of consolidated tabulations of the Building Permit Survey data which cover cities of 10,000 population and over and many satellite cities of less than 10,000 population. This material will be available before the end of the year.

In practically all cases the permits taken out for one-family houses include plumbing, heating or electrical work. When they are known to be excluded as in the case of some public housing developments, the Bureau has secured the separate contract values and made the necessary additio.ıs.

HERMAN B. BYER, Chief,
Div. of Construction & Public Employment,
U. S. Dept. of Labor.

## Many Newspapers Are Quoting

New York, N.Y.

To the Editor:

The Publisher's page in the May issue of the *American Builder* is a dandy.

I assume that you have sent reprints of this to the press and that extra circulation of it through other channels is being stimulated.

M. A. BERNS, Publicity Manager.
Universal Atlas Cement Co.

## Home Security Through Life Insurance

To the Editor: Chicago, Ill.

I have been interested in recent editorials and articles in *American Builder* recommending home ownership as a means of security for savings and for the general well being of the family. Life insurance policies are now being issued to supplement this security and to make it certain.

A young man taking on the obligation of acquiring a home by monthly payments over an extended period, such as 20 years, naturally wonders what would happen in the event of his death before the home was entirely paid for. Life insurance is ready to answer this question and remove the uncertainty. Policies are now available in the amount of the mortgage obligation to clear all remaining payments in the event of the death of the insured. We are contacting many operative builders and find that they are interested in making this type of home mortgage life insurance a definite part of their sales plans in working with prospective purchasers of new homes. They find that it has a strong appeal to the buyer who is looking for real security. This type of insurance to cover the decreasing home mort-

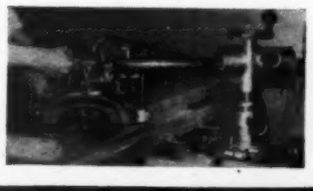
*(Continued to page 106)*

Speedmatic

. . . the TRUE-BALANCED Saw

*Means Easier, Faster Sawing*

Whatever the job, it takes less effort to do it with Speedmatic . . . because it's *true-balanced.* Compare Speedmatic, on your own work. You'll like its natural-positioned handle that avoids wrist cramping and muscle strain. You'll see how its extra broad shoe keeps the saw steady on any cut. You'll marvel at the easy, *one-hand* manipulating of the compact, light weight Speedmatic. You'll convince yourself —like thousands of other builders—that this TRUE-BALANCE, plus Speedmatic's 11% greater power efficiency, add up to the *greatest possible sawing production in a day's time.*



Your local Porter-Cable representative (name in phone book) is ready any time to arrange a demonstration.

Porter-Cable easy slide, non-sag, ball bearing radial arm converts your Speedmatic handsaw into an efficient bench saw, useful anywhere.

PORTER-CABLE MACHINE COMPANY

1721-6 N. Salina St. *Representatives in Principal Cities* Syracuse, N. Y

## LETTERS—

*(Continued from page 105)*

gage balance is inexpensive and does not add materially to the monthly cost. For those who cannot afford larger monthly payments it is often found that a slightly longer payoff period can be arranged so that the life insurance protection is added without increasing the monthly payment.

This type of home protection life insurance is also interesting to other families living in mortgaged homes. A definite element of security and mental comfort can be added by taking out one of these special policies to cover the mortgage liability and assure ownership of the home free and clear in the event of the death of the family head.

G. W. McCONNACHIE, Special Agent,
Northwestern Mutual Life Insurance Co.

### Many Illustrated; But Wants More

Harrisburg, Pa.

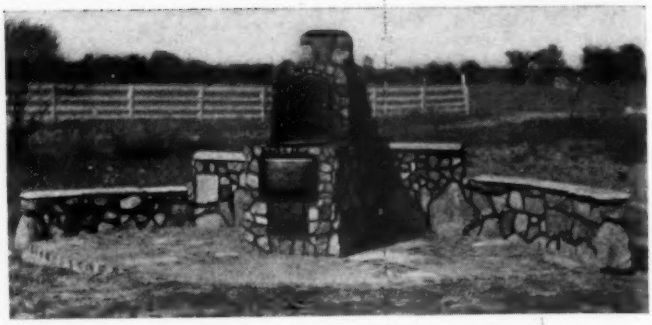
To the Editor:

There is a great demand at present by persons with moderate incomes ranging from $1500 to $3000 to own their own homes. Such persons might be able to finance homes on monthly expenditures ranging from say $25 to $45. Plans and descriptions of new homes as shown in your magazines and others are mostly for homes which are more expensive and could not be considered by this type of wage earners.

I believe you would meet a real need and would help to encourage more building of inexpensive, up-to-date homes if you could furnish information about this type and style of homes either as single units or as multiple units.

I offer you this suggestion in the hope that if you might adopt this idea it would prove of benefit to the wage earners in the lower brackets to acquire suitable homes which they might call their own until such time as they might be able to purchase more expensive ones—for instance, young married couples.

JOHN S. SPICER, President,
Building & Loan Association.

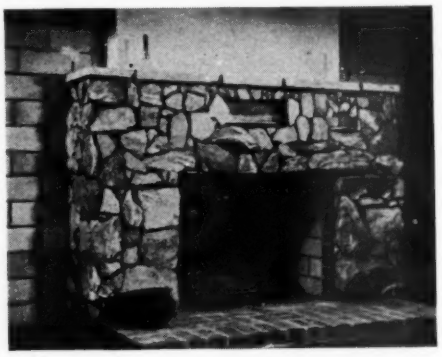


### Builds Harmonious Fireplaces

Wellington, Ohio.

To the Editor:

I am sending two pictures of fireplaces; I built six at one place. The small one is in the recreation room in the basement—all split cobble stones picked up on the estate. The outdoor one is in the back yard, has a bake oven in it, and is sixteen feet across the front. On each side there are marble slabs for seats at different heights, and have red mortar joints with the sidewalls in black mortar. The floor around it is worked out in stone, marble and brick.



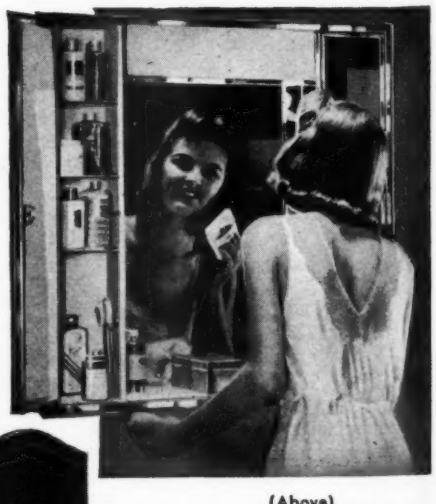
I used Donley Bros. equipment in these fireplaces, built on the estate of Mrs. Elizabeth Jones, seven miles east of Wellington.

GLEN DUTRIDGE, Bricklayer.

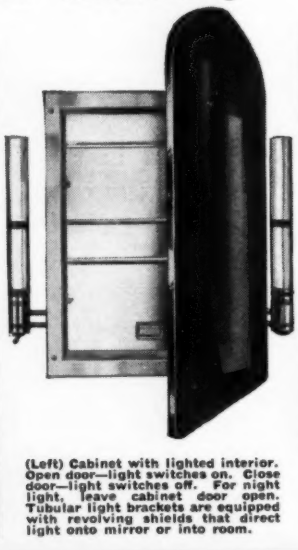

# *Better* LIGHTING *for* BATHROOMS *with* MIAMI LIGHTED CABINETS

For brighter bathrooms, install MIAMI lighted Cabinets and Ensembles. They take shadows out of shaving; put plenty of light where it is wanted for making up, hair dressing, etc.

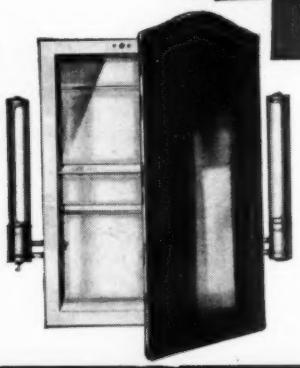
MIAMI lighted cabinets are completely wired at the factory—save cost of several electric outlets. Over 140 MIAMI models. Address Dept. AB for Catalog.



(Left) Cabinet with lighted interior. Open door—light switches on. Close door—light switches off. For night light, leave cabinet door open. Tubular light brackets are equipped with revolving shields that direct light onto mirror or into room.



(Left) Gothic top model with stainless-steel framed, mirror door. Equipped with tubular light brackets.



(Above)
Imperial—the most luxurious cabinet in the line. Large recessed center mirror flanked by spacious side cabinets. Indirect lighting. Chrome frame around entire cabinet.

(Left)
Venetian type, chromium framed cabinet equipped with No. 5 tubular light brackets. Light shield directs light where wanted.

MIAMI CABINET DIVISION · · *The* PHILIP CAREY COMPANY, Middletown, Ohio.

## How to Scale Published Plans

Barrington, Ill.

To the Editor:

As an Instructor in Building Trades in the Barrington high school, I have found that the plans printed in your magazines are very valuable for my classes in architectural drafting. However the students experienced considerable difficulty in obtaining the various measurements that are not indicated on these plans, until I developed the following scale marker. We think it is very easy to make, and to use, and I believe that there may be other readers of your magazines who would like to know about it.

First, I take a card of heavy, durable paper and space it off accurately in distances representing five feet. The first space is then divided into fifths, or feet, so that the card can be used to measure off any number of feet besides the multiples of five. Since this card can be used to make the paper scales for many plans to be copied, the spacing should be of an appropriate size. We use five-eighths on one side of the card, and five-sixteenths on the other side, so that the one card serves a double purpose.

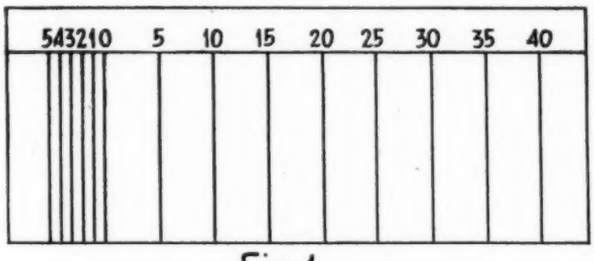



Fig. 1

Second, I take a strip of drawing paper about one-half inch wide and five inches long. This is placed upon the magazine drawing to be copied, along one of the longer dimensions of an exact number of feet, and two marks representing this distance are marked on its edge. (As a sample, 30 is being used.)

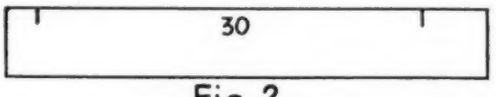



Fig. 2

Third, this strip is placed upon the spaced card in such a way that the two marks on its edge touch the lines representing this distance. Then I mark all points where the lines on the card meet the edge of the strip, being careful that the strip does not move. This strip is then usable as a ruler to measure the dimensions on the plan to be copied, and will measure to the nearest foot.

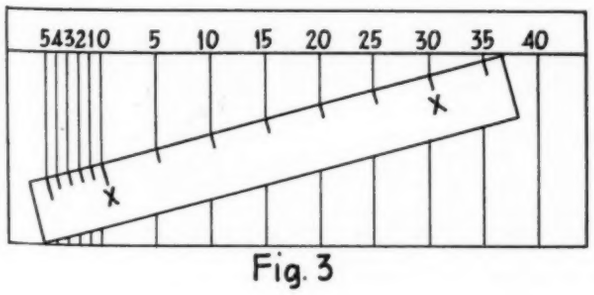



Fig. 3

Below is the finished strip, or paper scale, which can be used to obtain the measurements of all plans and elevations of the same set of drawings.

CHAS. H. ROSELLE,
Arts Dept., Barrington Public School.

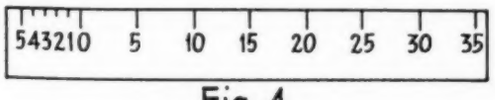
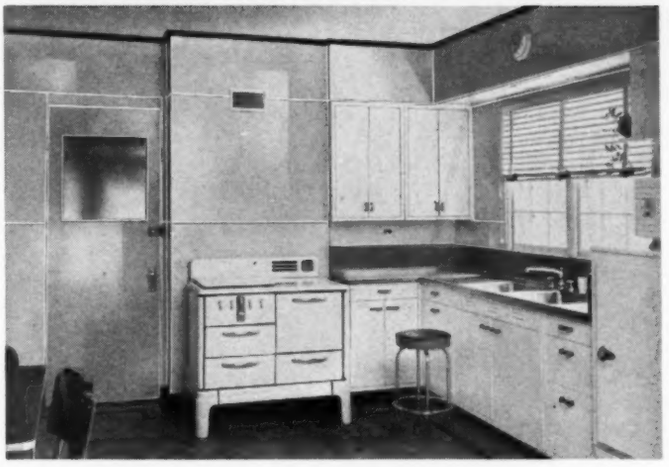



Fig. 4


# HERE'S WHY More Builders Use More *Marlite* Than Any Other Wall Paneling



♦ Even in the face of steadily rising costs you can offer your prospects more "luxury" for their money . . . irresistible luxury that short circuits "thinking it over" by creating colorful, charming kitchens and bathrooms with Marlite. Aside from helping to sell homes faster, Marlite offers you and your prospects decorative and practical advantages in a degree unmatched by any other pre-finished wall paneling.

**UNLIMITED DECORATIVE SCOPE** through an unmatched range of popular colors and patterns makes it easy to please the most conservative or gayest taste.

**ECONOMICAL** in first cost, economical to install, and economical in upkeep. Requires no periodic refinishing.

**EASY TO INSTALL**—A good carpenter readily cuts these wall-size panels (up to 4 feet by 12 feet) to the proper size and applies them to old walls or new—curved or flat. Many times one panel covers an entire wall, as in a bathroom.

**EASY TO KEEP CLEAN**—Marlite's sparkling, glass-smooth surface offers no "grip" for dust and dirt . . . is amazingly easy to keep spic and span. Resists stains, alkalies, alcohol, and other common deteriorants.

**PRE-FINISHED** at the factory under exacting laboratory control. No time-wasting finishing on the job.

**ADAPTABILITY**—Suitable for a wider range of interior decorating requirements—both home and commercial—through a wider variety of materials—*all available from a single source.*

Ask your lumber dealer to help you work out home-selling kitchens and bathrooms with Marlite. See Sweet's 11/39 or write to factory.

**MARSH WALL PRODUCTS, INC.**
63 MARSH PLACE • DOVER, OHIO

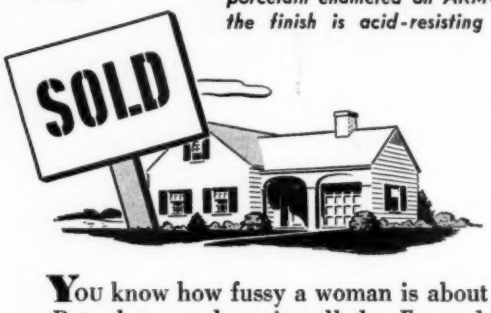
*Trade Mark Reg. U. S. Pat. Off.

Marlite

Pre-finished WALL PANELS
FOR CREATING BEAUTIFUL INTERIORS
PLAIN-COLORS HORIZONTALINE WOOD-VENEERS • • HEATEX • •
TILE-PATTERNS MARBLE-PATTERNS • CARSTENITE • MARSH MOULDINGS

# It helps clinch the house sale

• *Consider this modern sink and tray combination for apartments or small dwellings. It is porcelain enameled on ARMCO Ingot Iron and the finish is acid-resisting at no extra cost.*




You know how fussy a woman is about her kitchen. But when you have installed a *Formed* Iron sink or combination sink and tray you have a modern and attractive feature to help win her over.

Women like the graceful designing of these new-day fixtures. The high-luster porcelain enamel is easy to clean and is lastingly beautiful. They also will appreciate the acid-resisting feature at no extra cost.

When your *Formed* Iron Plumbing Ware is porcelain enameled on ARMCO Ingot Iron, you have another important talking point. For twenty-seven years the good qualities of this "world's standard enameling iron" have been advertised nationally. Your prospects know it stands for the finest basic quality.

Consider the many advantages of a *Formed* Iron sink, lavatory and bathtub for your next house. Write for specifications and prices. The American Rolling Mill Co., 1651 Curtis Street, Middletown, Ohio.

PORCELAIN ENAMEL ON ARMCO INGOT IRON

ARMCO INGOT IRON


# BOOKS on BUILDING

## *A Review of Current Publications*

**FOR information about these building books, write American Builder, Book Service Department, 30 Church Street, New York City, or the publishers.**

**CONCRETE DESIGN AND CONSTRUCTION—by Gibson and Webb. 1940. 2nd. 500 pages, 251 illus., 28 tables. 6 x 8½, cloth. American Technical Society, Chicago. $4.75.**

A new and enlarged edition written in the "how-to-do-it" manner so that it may be used as a textbook, as well as for reference. The appendix contains 250 questions and problems, divided under various chapters, the questions covering all practical concrete work and the problems all types of design. Some of the subjects covered are: Development of concrete and reinforced concrete; aggregates; methods of mixing, transporting and depositing concrete; steel for reinforcing; retaining walls; walks; T-beam design; flat-slab construction; school buildings; machinery for concrete work.

**POPULAR HOME DECORATION—by Mary Davis Gillies. 1940. 320 pages, 200 illus., 17 color plates. 8½ x 11, cloth. Wm. H. Wise & Co., New York City. $2.95.**

This book was inspired by years of reading and answering hundreds of thousands of letters of inquiry on the part of the author, who for the last ten years has been interior decorating editor of "McCall's Magazine." It is aimed at those who own or rent homes costing under $10,000, or who occupy moderate rental apartments, and illustrates decorating costs as low as $25 a room. Manufacturers of plastics, alloys, resins, synthetic products, fabrics, furniture, rugs, paint, rubber, ceramics, glassware, glass fabrics, woodwork, etc., will be particularly interested, because the author recommends the use of numerous materials that were unknown to the average person a few years ago. She especially urges plenty of color.

**MODERN AIR CONDITIONING, HEATING AND VENTILATING—by Carrier, Cherne and Grant. 1941. 558 pages, 452 illus., charts, diagrams, tables, 6 x 9, cloth. Pitman Publishing Corp., New York City. $4.50.**

A practical handbook of the best engineering data available from all sources used by practicing engineers, treating all the facts and formulae on every type of application problem in air conditioning, heating and ventilating. The authors—all of the Carrier Corporation—show, step by step, how to design, how to apply, and how to use air conditioning, heating and ventilating today. Featured is an up-to-date revision of the valued psychrometric chart prepared by Dr. Carrier at the request of the American Society of Mechanical Engineers when air conditioning was first recognized as a branch of engineering and since generally used as the basis of all air conditioning problems. The book provides vital information on such subjects as: Air conditioning economics, estimating cooling and dehumidifying loads, refrigeration and piping specialties, modern methods of duct design, air conditioning control systems, air distribution and zoning, forced hot water systems, design problems of specific applications, estimating and design of sound absorbers and vibration eliminators.

**STRUCTURAL DRAFTING—by Carlton Thomas Bishop. 1941. 287 pages, illus. 6 x 9, cloth. John Wiley & Sons, Inc., New York City. $3.50.**

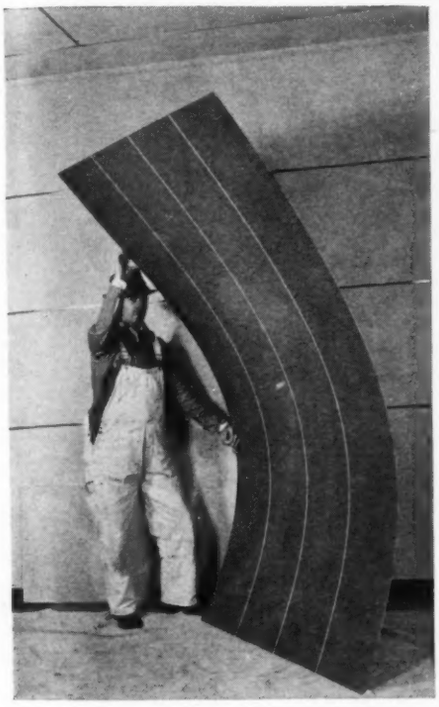
A book prepared especially to meet the requirements of engineering students and structural draftsmen covering fundamentals of drafting, and offering illustrations of structural drawings, including material on welding, concrete and timber. It corresponds in scope to the duties of the structural-steel draftsmen in the preparation of the detailed working drawings for the members of steel structures and the corresponding bills which emanate from the drafting room. The drawings for concrete and timber structures are discussed briefly to aid the structural draftsman in this parallel work.

# PRODUCERS TELL US–

*About Products, Personnel, Plants*

## J-M Adds DeLuxe Flexboard to Asbestos Wallboard Line

ADDITION of a new high-gloss finish flexboard, called J-M DeLuxe Flexboard, has been made to the line of Johns-Manville asbestos-cement sheet materials. DeLuxe Flexboard, J-M officials report, sets an entirely new style all its own in sheet materials for wall and ceiling finishing.



J-M DeLuxe Flexboard of asbestos-cement

The new product is available in eight attractive colors: Blue, Green, Peach, Yellow, Red, Ivory, Black and White. There will be three styles of sheets—4′ x 8′, plain; and two new styles, 4′ x 8′ with horizontal scoring on 12″ centers, to be known as the "Streamline" pattern, and 4′ x 4′ with 12″ x 12″ box scoring, called the "Block" pattern.

DeLuxe Flexboard has a "baked-on" surface and a base of asbestos and cement which has been especially waterproofed to prevent moisture from penetrating through the back and edges of the sheet. The asbestos cement base has the further advantage of providing fire protection, which is particularly important in kitchens.

Application methods for DeLuxe Flexboard are similar to those for other J-M Flexboard products, and the new material is easily applied over old or new surfaces. It is especially suitable for installation on the walls and ceilings of bathrooms, kitchens, recreation rooms and laundries in homes, and commercially in bakeries, barber and beauty shops, restaurants, florist shops, display rooms, hospitals, doctors' offices, laundries and washrooms.

## Second-Hand G-E Oil Furnaces Bring as High as $350 on Resale

SOME KIND of a record in the reselling of used heating equipment has been established at Hartford, Conn., and is reported with considerable satisfaction by the Sumner L. Willson organization, distributor for General Electric heating and air conditioning equipment, who not only made the original sale but profited by later developments.

Last winter a fire insurance company in Hartford bought a tract of land equivalent to about four blocks, in an old residential section, on which to erect a new office building. On the tract were many old homes which had to be torn down by wreckers, and in about a dozen of these were G-E oil furnaces, installed by Willson between 1934 and 1938. The furnaces became the property of the wreckers, and they were able to dispose of them at prices ranging from $275 to $350, cash, as they were, connected to the mains in the buildings. Previously, equipment under the same circumstances has brought a top price of about $60 in this vicinity.

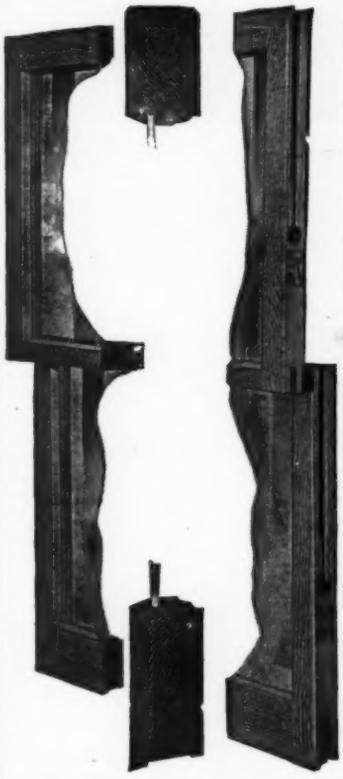
To add profit to pleasure for the G-E organization, the owners of the furnaces, originally, who bought other homes, then purchased G-E furnaces and winter air conditioning at a cost of more than $11,500 to replace heating which they found in their houses.


# MORE WINDOW FOR THE MONEY

*That's The Result When You Install The Original and Genuine—*

RED-E-FIT ROT-PROOF -REZISTAL- TREATED

# WOOD WINDOW



● You eliminate excessive absorption of moisture . . . . get protection against wet weather and high humidity which causes swelling and sticking of windows.

● You eliminate undue shrinkage and expansion . . . prevent blue stain or black mould from developing and get protection against all types of decay, including termites.

● You also reduce painting costs because the rot-proof treatment serves as a preliminary priming coat and gives full protection until regular paint coats are applied.

● All these features add up to "more window for the money" and a more satisfactory job for the owner and contractor.

Be sure to specify and get the ORIGINAL and GENUINE RED-E-FIT ROT-PROOF WINDOW; made exclusively by

THIS RED-E-FIT ROT-PROOF WINDOW

HUTTIG OF MUSCATINE "WOODWORK OF MERIT"

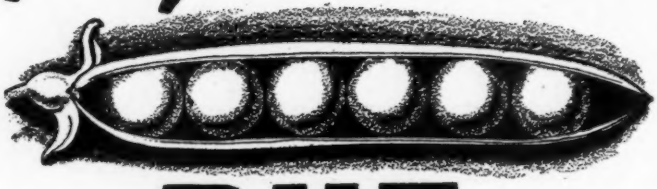
is made of soft textured, kiln dried, Western Ponderosa Pine and when identified by the above brand burned into the edge of the stile is guaranteed for 25 years against rot and decay.

See your Dealer or write today for descriptive literature.

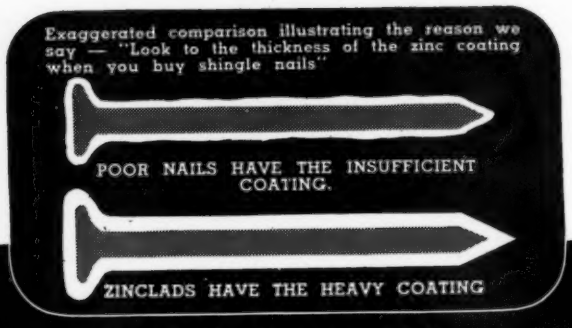
**HUTTIG MFG. COMPANY**

MUSCATINE IOWA

# They look alike



# BUT...


Exaggerated comparison illustrating the reason we say — "Look to the thickness of the zinc coating when you buy shingle nails"
POOR NAILS HAVE THE INSUFFICIENT COATING.
ZINCLADS HAVE THE HEAVY COATING

*This Illustration Shows the vital difference between Zinclads and insufficiently coated nails*

Two shingle nails may look alike but if you want the real story, slice them in two and take enlarged photographs of a section of each. The comparative thickness of the two types of zinc coatings will tell you a startling story . . . and remember, it's the THICKNESS of this zinc coating that determines the LIFE of your customer's wood shingle roof. We made this test at our own plant with a Maze Zinclad Wood Shingle Nail and an insufficiently coated nail. The above is an exaggerated drawing of what we found. Note the heavier coating on the ZINCLAD — effected when the nail was hot-dipped in pure zinc, a process distinctly different from galvanizing.

In many cases Maze Zinclads have actually doubled the life of a wood shingle roof. Yet, they cost only 9c per square more than regular galvanized nails. At such a small extra cost, is it worth the risk then to use any nail other than Maze Zinclads?

**W. H. MAZE COMPANY • PERU, ILLINOIS**

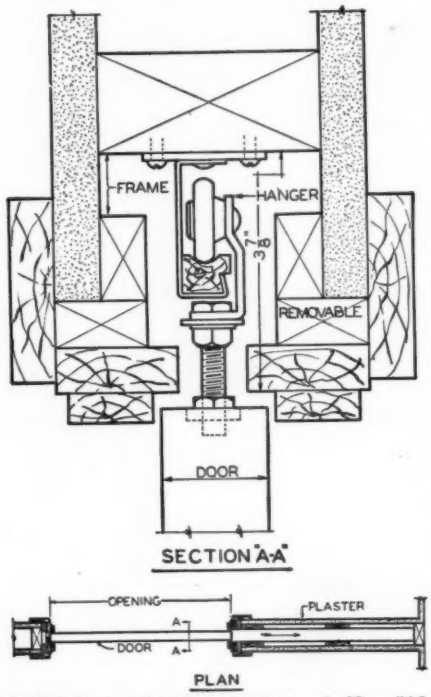
**MAZE Zinclad NAILS**


## New, Smaller Hardware For Vanishing Doors

VANISHING doors are coming back into popularity with the development by the Richards-Wilcox Manufacturing Company, Aurora, Ill., of a new, smaller, lighter type of hardware that makes it possible to hang light weight vanishing doors in a standard 2" x 4" studded wall. It can also be used on residential parallel wardrobe doors, in bedrooms.

These new small hangers weigh only 1½ lb. per pair and are noiseless in operation. They have a single wheel. The hanger plate is ⅞ inches wide and can be used for doors as thin as ⅞ of an inch. The track on which these small hangers operate weighs only 1 lb. per foot. It is formed of sheet steel with a heavy wood runway permanently clinched into position. A concave groove in the wood runway causes the hanger to center itself at all times. Installation provides a quiet, easy running door.

**R-W's new No. 719 hanger and track**




**SINGLE overhead mounting of No. 719 hangers and track**

## Bin-Feed Stoker Makes Coal Burning Entirely Automatic

FIFTEEN manufacturers are now making the bin-feed type of stoker which completely eliminates all coal handling, says the Plumbing and Heating Industries Bureau. Following the development of the bin-feed stoker, many homeowners are replacing hopper units with the new type. With the bin-feed type it is

unnecessary for the housholder to do anything more than see that there is an ample supply of fuel available in the bin at all times.

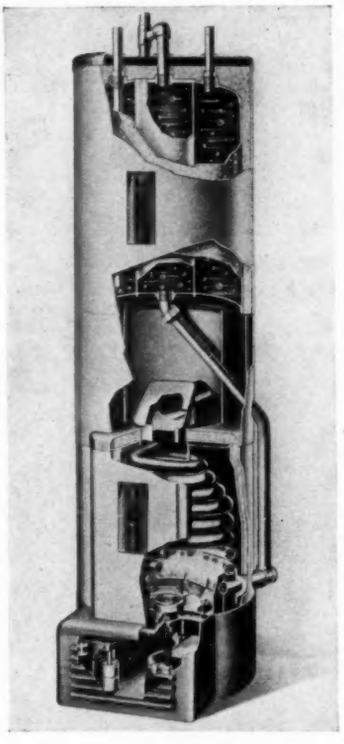
The other important engineering problem of the stoker—that of seeing that there is a proper distribution of air and coal to give good combustion—has reached a new standard of efficiency with the improvement in the feeding mechanism and automatic air control. Extensive research has revealed new burner head designs which enable a proper fuel bed condition to be maintained at all times under all conditions.

## Oil Burning Heating Unit

AN oil burning heating unit especially designed to provide inexpensive, automatic heat and domestic hot water in small homes is being offered by the Timken Silent Automatic Division, Detroit, Mich. This unit, Model BER, is very compact, requiring less than four square feet of floor area, and yet this one cabinet combines a wall-flame oil burner, a boiler, a domestic water heating plant and domestic hot water storage tank. The small floor area required for installation makes it possible to place the unit in an out-of-the-way corner of the basement, or in an upstairs space the size of a small closet when a chimney connection is available.

It is built around the Timken wall-flame burner, with the flame placed close to the heat absorbing surfaces.

When either the temperature in the living quarters or the temperature of the domestic hot water falls to the "on" setting of the automatic controls, the burner starts and operates until the desired temperature has been restored. In the summer, when suitable controls are installed, the burner operates only to heat the domestic water—not the living quarters.



**CUTAWAY view of compact oil burning heating unit requiring less than four square feet of floor area.**

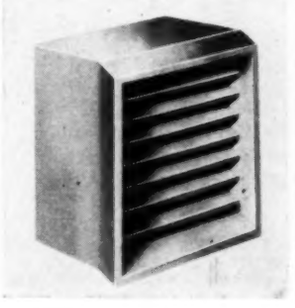
The operating cost of this unit is moderate, since the Timken wall-flame oil burner which is built into it burns inexpensive No. 2 fuel oil and operates at high efficiency at very low burning rates.

The heavy gauge cabinet, which is spot welded for strength and durability, is finished in attractive green enamel. Heat lost into the basement is reduced to a minimum by extra heavy insulation, and this also reduces the operating period of the burner and makes for low fuel expense.

## Ventilating Brick for Use in Foundations

THE Majestic Company, Huntington, Ind., has added a new Vent-Brick No. 488 to its line of metal building necessities. Although it serves the same purpose as the ventilating brick that the company already has in its line, it fills a demand for a large ventilating device for use in foundations and other enclosed "dead-space" areas, for allowing a certain amount of light plus ventilation.

The Vent-Brick is cast in a solid unit of semi-steel, and is 8 x 8 x 4½ inches in size—one brick wide and four bricks high—so it can be easily mortared in with the brickwork. Louvers are arranged to deflect weather, and back of them is a screen for keeping out bugs. The weight of the brick is 13 pounds.



**LARGE ventilating brick which can be mortared in with the brickwork.**

*96,000 new homes have the comfort and protection of firesafe*

# CONCRETE FLOORS

## It will pay you to feature concrete in 1941

96,000 homes are enough to house the entire city of Indianapolis. That much construction in five years shows that there's a really *big* market for concrete floors . . . a ready opportunity for builders and realtors.

### Offer Greater VALUE with Concrete

Concrete floors give your homes new selling appeal because they—

- **Act as barriers against the spread of basement fires.**
- **Stiffen and strengthen the whole house.**
- **May simply be colored and waxed, or given any conventional covering—wood, tile, linoleum, carpeting. Every buyer suited!**
- **Promote warmth and comfort; do not creak or sag.**
- **Can be built at little or no higher cost than for ordinary construction.**

It will pay you to feature firesafe concrete floors in your homes. Write us for suggested specifications and construction details (free in U. S. and Canada).

**PORTLAND CEMENT ASSOCIATION**
**Dept. A6-3, 33 W. Grand Ave., Chicago, Ill.**

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

## Factory to Barnyard Delivery

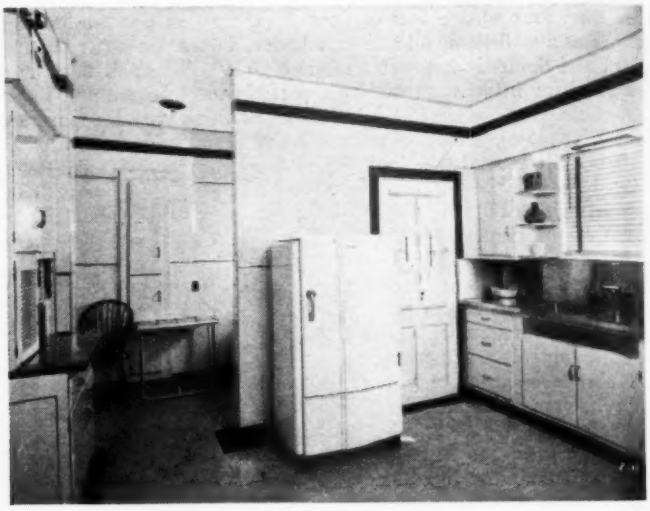
TRUCK transportation via the Dodge Job-Rated 1½-ton model shown enables the Economy Portable Housing Company, West Chicago, Ill., to deliver pre-fabricated poultry houses and pig incubators from the factory to the exact spot in a farmer's barnyard for the location of the building. When the truck reaches the designated site, the building is set up and within a few hours is ready for use. In delivering these houses throughout the Middle West, mileage on the truck mounts rapidly. A thousand miles a week is not at all unusual, and trucks operated by the company register 100,000 miles in a surprisingly short time.

**FACTORY-built and truck-delivered.**

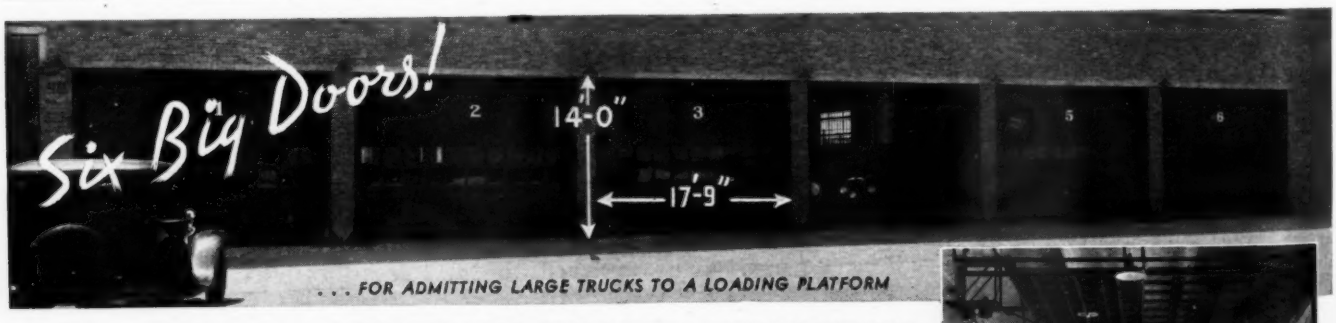
## New Low Priced Prefinished Wall Paneling Offered

A NEW low priced companion product to Marlite Deluxe prefinished wall paneling is announced by Marsh Wall Products, Inc., Dover, Ohio. The new product is to be known as Marlite Velvetex, and will be competitive with low-cost prefinished wall boards now on the market. Its soft satin-like finish distinguishes it from Marlite Deluxe, which has a high polish mirror finish. The new product was developed by the Marsh research laboratories in answer to the demand for a prefinished wall paneling with a velvet smooth finish.

It comes in wall-size panels that can be readily cut to size and applied directly to old walls of plaster, insulation board, and lath, provided they are reasonably straight. Under actual "owner-test" for the past year, Marlite Velvetex has been shown to possess color stability, durability, and resistance to soaps, alkalies, mild acids, and other common deteriorants. It will be available in three patterns: 18 plain colors; tile-patterns; and Horizontaline—a newly developed streamline design.

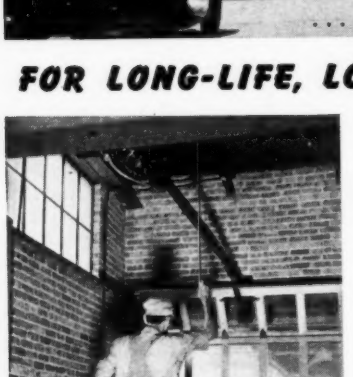


**A VELVETEX kitchen; walls plain white trimmed with Marsh white alloy mouldings; base black Velvetex.**


**FOR LONG-LIFE, LOW-MAINTENANCE INDUSTRIAL SERVICE USE . . .**

**BARCOL OVERDOORS**



SPECIAL TRUCKING DOOR CONTROL

● Special construction features make the Barcol OVERdoor extremely adaptable to industrial buildings, where large size doors are usually required. Design features, such as roller crank closing action, tailored twin torsion counterbalancing springs, and continuous vertical track brackets, help to provide the easy operation and strength necessary for durability under hard use.

**ELECTRIC DOOR OPERATORS AND CONTROLS**

These motor-driven units are matched to the door requirements, and can be controlled in a number of different ways. Door operators are also available for swinging, sliding, and steel rolling doors, and for swinging and sliding gates. For further details, send for descriptive literature.

INTERIOR OF ABOVE BUILDING SHOWING ELECTRIC DOOR OPERATORS

BARCOL

LOOK FOR THIS MARK OF QUALITY

SEE . . . our new 12 page Catalog in 1941 SWEET'S

REPRESENTED IN PRINCIPAL CITIES

**BARBER-COLMAN COMPANY**

104 MILL ST., ROCKFORD, ILLINOIS

IN CANADA A. B. Ormsby Co. Toronto

## Richmond's New Calendar Is Builder's Guide

RICHMOND Screw Anchor Company, Brooklyn, N. Y., has ready for immediate distribution a large size wall calendar for contractors and builders doing concrete form work. Arranged on the large single sheet which carries the three months

**WALL CHART is builders' guide.**

calendar pad are a series of charts and tables giving the following information: 1. Practical concrete pouring suggestions; 2. Common form lumber data; 3. Handy wire nail facts; sizes, length, strength, etc.; 4. Tables of decimals of a foot for each ⅛" from ⅛" to 12"; 5. Table of weights and areas of reinforcing steel; 6. Concrete information on water-cement ratios, and 7. Richmond Ty-Spacing chart giving complete information on Ty-Spacing, form lumber, concrete rise per hour, etc.

## New Type Wall Connection for Gas

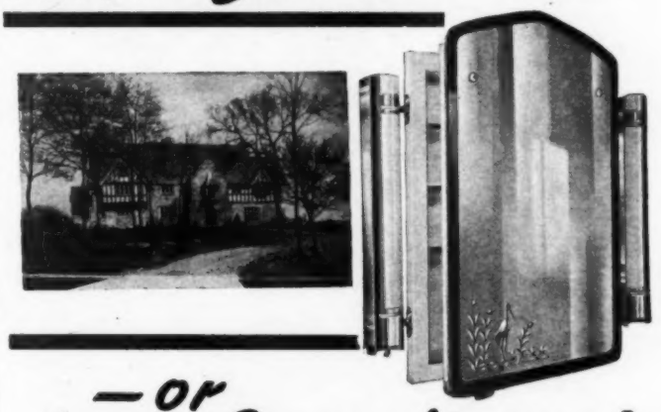
A COMBINATION gas outlet box and safety shut-off valve, which is built right into the wall and is very similar in appearance to the familiar electrical outlet, has been placed on the market by the Imperial Brass Mfg. Co., Chicago. This new type of gas connection, which is known as the Gas-o-let, is designed to take the place of the old fashioned, protruding gas valve. It makes it possible to connect up space heaters and other gas appliances in a way somewhat similar to the plugging in of electrical devices.

**IMPERIAL "Gas-o-let"**

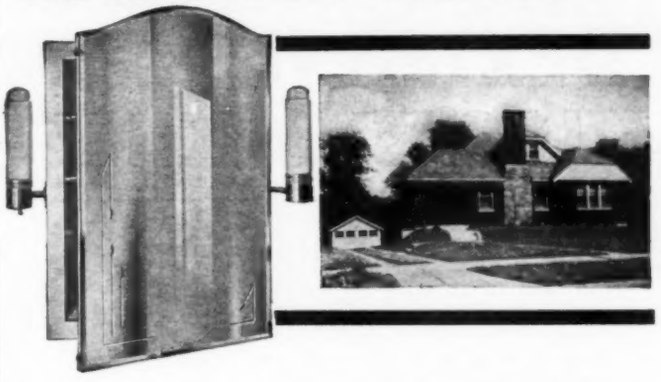
Householders will appreciate the attractive appearance of the Gas-o-let and the way it eliminates the unsightly appearance of a gas valve protruding into the room. The Gas-o-let is set flush into the wall.

The Gas-o-let is designed to be a permanent part of the piping system. A substantial steel outlet box houses the forged brass valve, which is approved by the American Gas Association. A hinged cover hides the brass ⅜" male S.A.E. connection onto which gas heater and other appliances can be connected in the usual fashion. When rubber hose is used for connecting up appliances, a special adapter is available.


FOR A "SHOW PLACE"



—or LOW COST HOME!



There's A LAWSON CABINET In Every Price Range For Every Type of House

You know that home hunters look mostly at the "style" of the house, the size of the closets, the living room, the gadgets in the kitchen—and the bathroom fixtures.

Selling a house is easier when you install Lawson Cabinets in the bathrooms because Lawson Bathroom Cabinets "look like they cost more" than is actually the case.

Take the Lawson line of "Time-Proof" Cabinets finished in Vitreous Porcelain. Could you imagine such high quality one-piece drawn box cabinets with 10 special features selling at baked enamel price levels?

PORCELAIN OR BAKED ENAMEL

And prospects looking at a home in which there is a lower priced Lawson *baked enamel* cabinet always guess that the cabinet costs more than you pay for it.

Be sure to leave the Lawson seal featuring "125 Years of Quality" on the Cabinet. It is a seal of protection for your customers—a seal that makes the sale easier—for you.

THE F. H. LAWSON COMPANY
Bathroom Cabinet Division, Cincinnati, Ohio

125 YEARS OF QUALITY Lawson

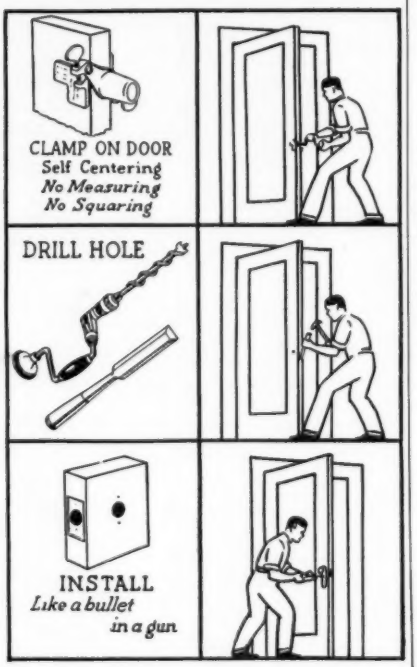
SOLD EXCLUSIVELY THROUGH WHOLESALE OUTLETS

# DEXTER-TUBULAR LOCKS & LATCHES

Dexter Bit-Guide is the super tool of "Drill-Hole" installation. Simply clamp on door at height desired—self centering—no measuring—no squaring.

"Drill-Hole"—Dexter Bit-Guide directs the boring straight and true. Shallow mortise for face-plate and the door is ready.

Install the Dexter-Tubular. Mount trim and the job is done in half the time. FREE! Send for illustrated booklet. No Obligation.



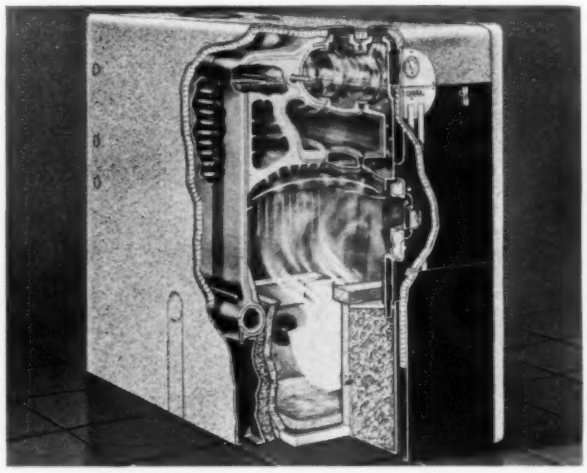

Your carpenter will install TWO Dexter-Tubulars to ONE ordinary mortise lock! Right now, with shortage of skilled labor, think what that would mean to you. Today, it's not savings alone, but conserving labor that counts. Ask the authorized Dexter Dealer in your community to demonstrate.

Remember! You take no risk in specifying Dexter-Tubular. It's Lifetime Warranted. Learn how this Warranty puts extra sales appeal in houses you build. Write. No obligation.

**National Brass Company, Mfrs.**
GRAND RAPIDS, MICHIGAN
Certified
Builders Hardware
Cabinet Hardware
Screen Door Hardware


## 1941 Design for Eye Appeal and Performance

THE new 1941 National Radiator No. 20 Series deluxe oil-fired boiler and complete "All-in-one" heating unit are offered by the National Radiator Co., Johnstown, Pa., to appeal to buyers who want modern attractiveness in addition to improved internal design in heating equipment. These products strike a note of harmony in color contrasts of crinkled warm red and black and pleasing proportions of the overall enclosing jacket. The burner, controls, and accessories are concealed in a cabinet at the back of the boiler.



**NATIONAL Radiator's new No. 20 boiler.**

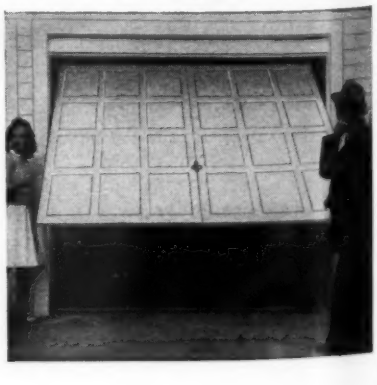
Internal construction design improvements include: extended "heat extractor" surface in flue-ways and under crown-sheet; heat conserver baffles to direct flow of hot gases against these projecting surfaces; properly sized "easy-fit" combustion chamber may be obtained for the boiler and is standard equipment with the unit; patented dry steam baffles give quick heating and eliminate water-hammer; front section has a flow-tapping for circulating hot water systems; an observation port in the inspection door permits check-up on combustion conditions without opening door, thus eliminating excess air; a draft and $CO_2$ analysis tap is provided in the front inspection door and also in the smoke collar.

The No. 20 Series Deluxe Oil Heating Unit is equipped with a quiet burner; long-hour motor with overload protection; positive pump; turbo-blast head (intimately mixes air and oil mists) all give dependable service—reducing adjustment recalls and thus protecting profits against losses.

## New Garage Hardware Set

THE Stanley Works, New Britain, Conn., have recently announced a new garage hardware set that works on the principle of the "swing-up" design. Very little effort is required to open the door; a mere turn of the handle, and the door glides up and rests securely overhead. The set is for doors weighing not over 150 pounds, and up to 8 feet wide, and 6 feet 6 inches to 7 feet high.

As the name "Stanley Econ-O-Matic" suggests, this set is both economical and automatic and is popular for modern and remodeled garages. The set, which consists of the hardware only, is packaged complete in a carton—a feature which enables dealers to carry it as a shelf item.

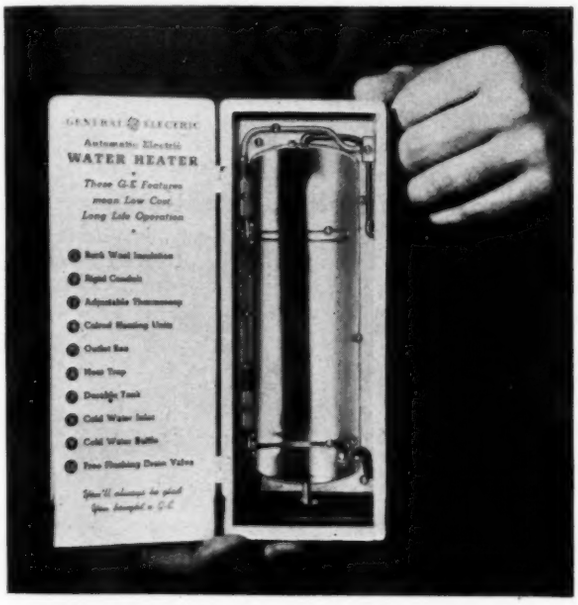


**GARAGE DOOR made fully automatic by installation of "Econ-O-Matic hardware set.**

## Pocket Sized Water Heater Model

SALESMEN of the General Electric water heater sales section are now able to show prospects what goes on inside a water heater, through the use of inexpensive miniature water heater models, small enough to be carried in a pocket. The front of the model is hinged, unlike the original, and swings back to reveal the inner shell or tank, heating units, controls, and other features.

On the inside of the door ten features are listed, selected by G-E because they stand for low cost and long life operation—rock wool insulation, rigid conduit, the adjustable thermosnap, sealed Calrod heating units, outlet box, heat trap, durable tank, cold water inlet, cold water baffle, and the free flushing drain valve. Each can be seen in miniature just opposite.

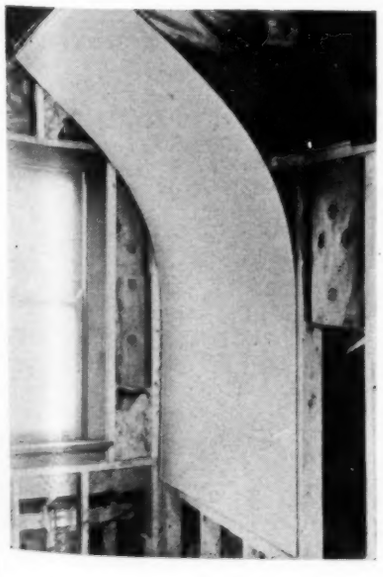



**MINIATURE G-E electric water heater for salesmen's use.**

## Easily Worked Asbestos-Cement Wallboard

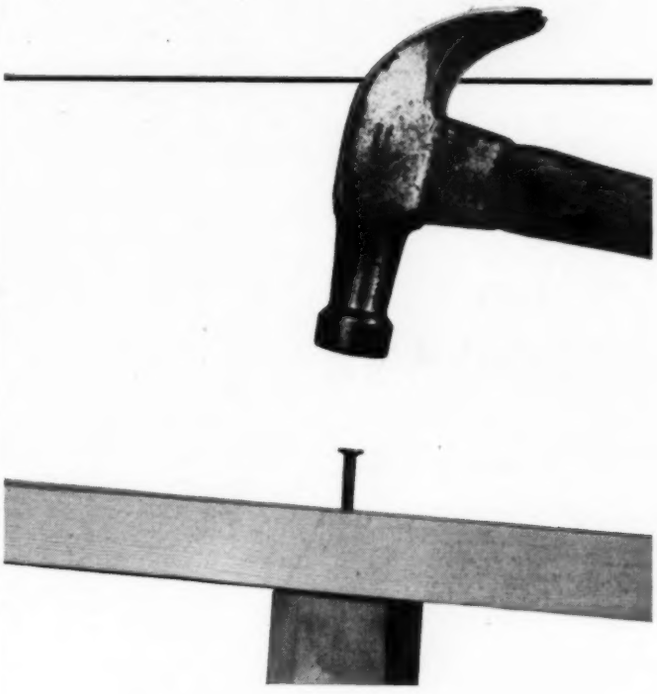
THE Philip Carey Company, Lockland, Cincinnati, Ohio, has developed the Careystone asbestos-cement wallboard which makes a feature of its easy-working qualities. It may be nailed, sawed, hammered or perforated without danger of cracking or splitting, and is unusually flexible, making it possible to curve it around four foot radii without breaking. The wallboard is rot-proof, fire resistant, and affords protection against rodents, vermin, and termites.

Careystone wallboard is recommended wherever other types of unfinished wallboard are ordinarily used. It is especially desirable for bathrooms and kitchens, since it may be painted and repainted, lending itself to a change in color scheme whenever desired; it may also be papered. It is manufactured in sheets 3/16", ¼" and ⅜" thick and in sizes 48" x 48" and 48" x 96", and is also available scored in 4" x 4" squares to represent tiles. Unfinished metal trim may be had for all requirements.



**WALLBOARD of asbestos-cement is flexible enough to be curved.**

**Nails drive easily and STRAIGHT when you work with the WESTERN PINES***



**There's a satisfaction in driving a nail into Western Pines. Under the firm impact of the hammer, the nails drive straight—without the risk of splitting or irritating deflection.**

**This is one of many advantages in the unusually even grain and soft texture of these woods. Easily handled . . . quickly worked up . . . suited to all parts of the job, they *speed* all parts of the job!**

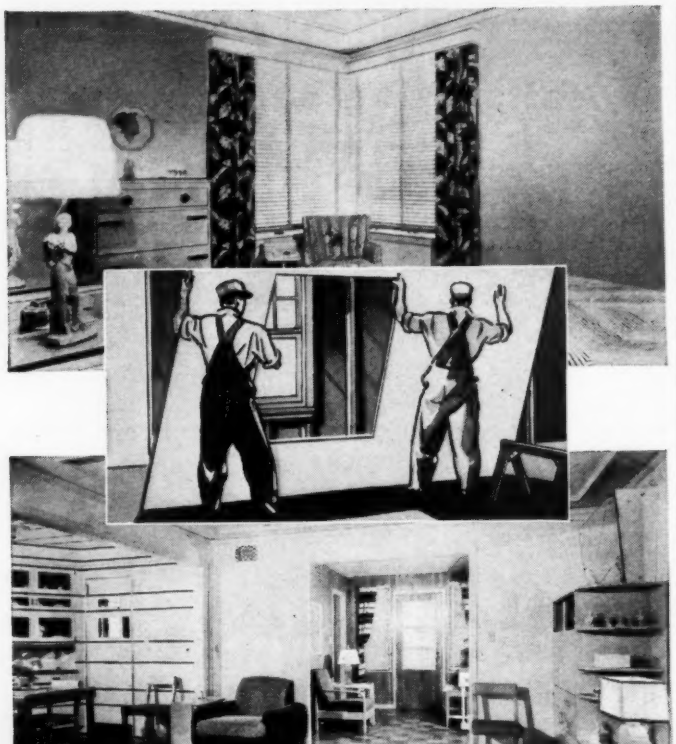
**Ask for and get Western Pines from Association mills. You'll find them thoroughly seasoned . . . expertly milled . . . accurately graded!**

***WESTERN PINE ASSOCIATION***
YEON BUILDING PORTLAND, OREGON

WPA

*Idaho White Pine *Ponderosa Pine *Sugar Pine

*These Are The Western Pines*



DRY-WALL CONSTRUCTION
*means satisfied customers*

Dry-wall construction has been thoroughly tested through years of practical use, and approved by contractors and architects throughout the country. With Homasote dry-wall construction, you eliminate completely the unnecessary annoyance and expense of waiting for plaster to dry. You escape the dangers of chipping and cracking so frequently encountered in ordinary walls and ceilings.

Dry-wall construction—with the use of Homasote in large, crackproof sheets up to 8′ x 14′—eliminates troublesome joint problems . . . and it is the basis of the famous Precision-Built Construction, which has been used successfully in $4,000,000 of home construction.

Your customer enjoys many advantages with dry-wall construction—advantages he cannot obtain with ordinary plaster construction. He has a doubly insulated home . . . which is so snug it requires only the smallest heating unit . . . with Homasote walls, insulating floors, ceilings and roofs. He has complete choice of design.

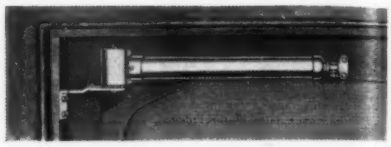
Because you provide homes at low initial cost—with low upkeep and maintenance—you create additional sales for yourself. At the same time, you build a reputation which brings you an ever-increasing number of satisfied customers.

We invite you to write for complete particulars on Homasote dry-wall construction. They will help you become the outstanding contractor in your community. HOMASOTE COMPANY, Trenton, New Jersey.

*Weatherproof*
HOMASOTE
*Insulating and Building Board*

## New Screen Door Closer

THE NORTON Door Closer Co., Chicago, has brought out a new model (No. 44) illustrated herewith in its installed position. It embodies definite advancements in appearance and engineering design. The spring is enclosed in a smooth, curved cover that is quickly removed and replaced without distortion. The finish is brown and is sprayed on. In line and finish, this closer harmonizes with any type architecture and decoration.



NEW Norton screen door closer

For durability, all parts are brass and steel, with the exception of one iron washer.

Installation is easy. Norton Model No. 44 Screen Door Closer may be installed on either the hinge or opposite the hinge side of the door, right or left hand. Only two inches are required between doors for installing on opposite the hinge side.

## Butt Novelty Full of Information

THE Stanley Works, New Britain, Conn., is offering to the trade a full size No. 241 Butt put up in a colorful jacket. When the leaves of the butt are folded together there is a picture of a little man pointing to the *third butt;* on the back is a story, "Remember Three Butts To A Door" and some reasons for always using three butts to a door, which include:

"Keep butt edge of door from warping. (Light doors warp even more than heavy ones.)

"Keep latch and lock working perfectly.

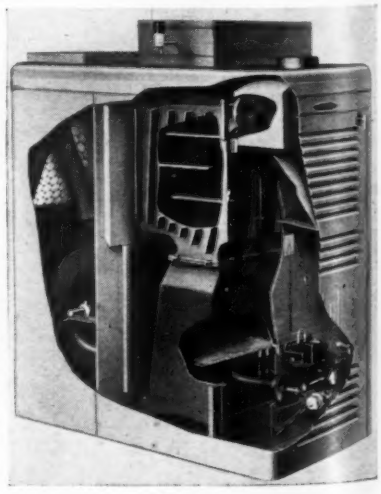
"It often costs more to repair one poorly operating door than to put a third butt on every door."

FREE sample offered to the trade

When the butt is opened, the Stanley Non-Rising Pin, an exclusive Stanley feature, is displayed. It explains that the pin cannot work up. It is fitted with a split ring which snaps into place in a pocket formed at a lower end of top knuckle. Simple, positive and trouble-free.

## New Moncrief Heater

THE HENRY Furnace and Foundry Co., Cleveland, has just introduced a new Moncrief gas fired winter air conditioner which includes new features. It is exceedingly compact and at the same time affords high heating efficiency. The radiating surface presented by the heating elements is large in proportion to gas output. Special design has produced long gas travel and new system of baffles compels the hot gases to travel always horizontally and upward and to contact all the interior of the heating chamber so that every part of the unit is an effective radiating surface. Fins projecting vertically from the exterior of the heating units add further to the amount of heat transfer surface.



MONCRIEF gas heater

# PRACTICAL JOB POINTERS AND BUILDING DATA

**AN EXCHANGE of ideas and methods in building practice. For individual contributions, two dollars or a year's subscription to American Builder is paid when published; state occupation.**

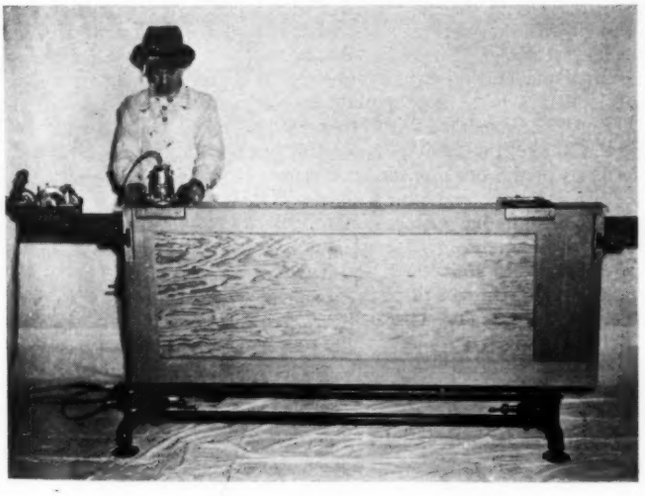
## Pennsylvania Contractor Develops Machine for Pre-fitting Doors, Jambs

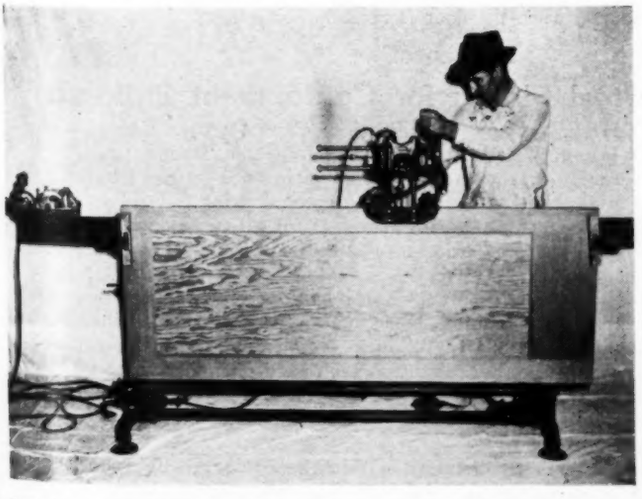
### Time Required with Power Tools Cut in Half

WARREN B. Zern, General Contractor of Pottstown, Penna., has developed a machine which, used in conjunction with power saws, power routing and mortising machines, he has successfully used in completely pre-fabricating doorways consisting of wood doors in wood jambs. This method has been used in installing the doors in a 30-unit apartment house now nearing completion in Pottstown.

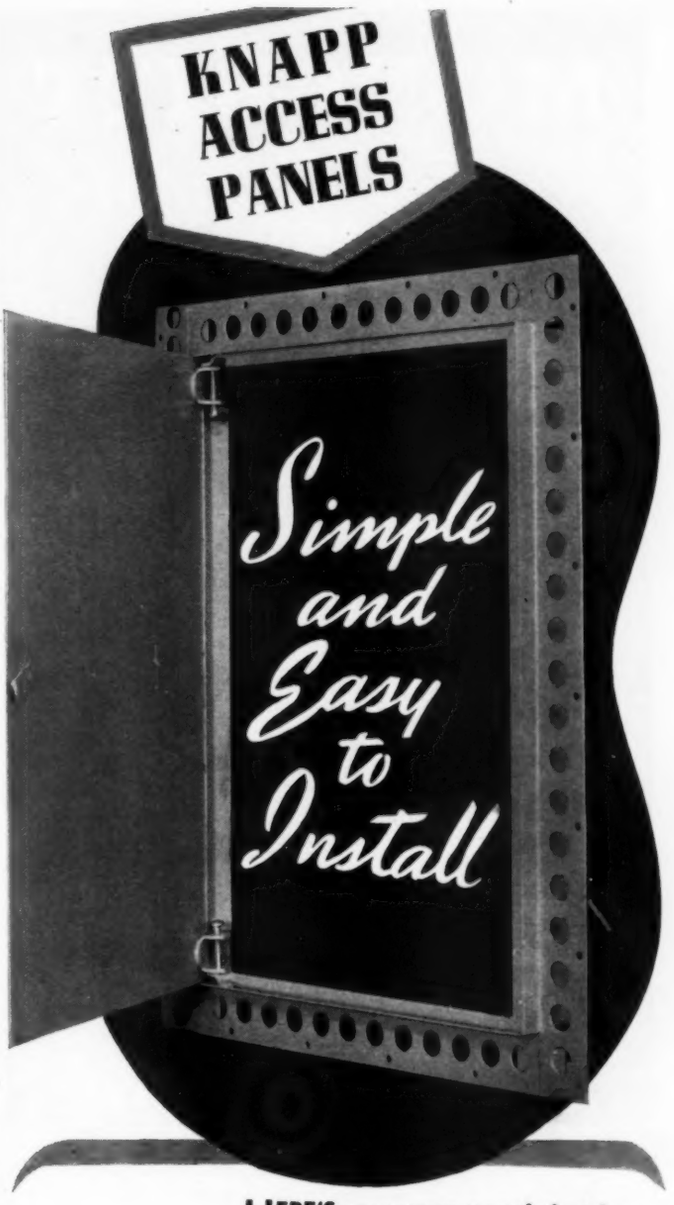
The machine consists, essentially, of a steel angle track, mount-

*(Continued to page 118)*





ABOVE at top: Contractor Zern's door fitting machine showing use of electric router. Lower view: Power mortiser in use; note electric planer at left end of machine, placed for immediate use.


Knapp Flush Access Panels are made by the manufacturers of Knapp Corner Beads.

FOR FURTHER INFORMATION
SEE OUR CATALOG IN SWEET'S

HERE'S an access panel that becomes a part of the decorative treatment of the wall in which it's mounted—plastered in, it forms a neat flush-fitting surface. The sturdy, pre-assembled Knapp Flush Access Panel is quickly and easily installed. Cam latches and pivot hinges are in non-corrosive metal. And the captive pin feature of the hinges permits quick removal of the door, without loss of small parts.

In Knapp metal access panels you'll find the same ruggedness and high quality that's characteristic of all Knapp products. There is a variety of standard sizes to choose from, and special sizes may be had on order.

*Write today for complete specifications.*

KNAPP METAL TRIM
KNAPP BROS. MANUFACTURING CO.
GENERAL OFFICES • JOLIET, ILLINOIS

# MONCRIEF
## Winter Comfort

MONCRIEF makes a type and a size of winter air conditioner or furnace for any type and size of home. Whether the need be for the utmost in automatic operation, convenience and style, or for economical operation and low initial cost, you will find in the extensive and complete Moncrief line a unit that checks with your requirements at every point.

Moncrief winter air conditioners and warm air furnaces are built in specialized types for burning coal, oil, or gas. All are modern in design, ruggedly built to give long satisfactory service, and priced to give the builder or home-owner outstanding value.

*Write for new illustrated literature and data sheets adapted for your file*

***Moncrief Engineering Service*** **is available to you without charge**

THE HENRY FURNACE & FOUNDRY CO.
3479 E. 49th ST. • CLEVELAND, OHIO


## DOORS—

*(Continued from page 117)*

ed on two tubular posts with suitable bases. The posts are adjustable as to height, and, when a door is placed upon supports near the bases, the height of the track above the door supports can be adjusted by turning a crank, which operates a system of gears and screws which control the position of the track. An electric planer has been equipped with a channel-shaped guide, fitting over the track, in such a manner that it can be slid in a straight level line from end to end of the track, which is as long as the largest door to be fitted. The planer, which is arranged to cut the proper bevel on the door, is then used to cut down the upper edge of the door until the top of the guide is resting upon the top of the track. The door edge is then sanded, and the edges "eased."

When one edge of the door has been thus beveled and sanded, the beveled edge is placed upon the bottom supports. By the use of a cam arrangement, the base is then raised a small distance, which brings the unworked edge of the door high enough so that it can be planed off. This edge is then beveled and smoothed. The width of the door is then a predetermined measurement, which makes the proper allowance for clearance, etc.

The ends of the door being in a fixed position, another feature of the machine, a simply-adjusted gauge, predetermines the position of three control points which fix the position of a template made to control the size and location, with relation to the door edges, ends, etc., of the proper mortises to fit the butt hinges to be used with the door. The machine is also arranged so that, after the wood jambs have been cut to the proper width to fit the plastered partition, the jambs can be routed out for the hinges at the same time that the door edge is routed.

The door and jambs having been fitted in this manner, and routed out for the hinges, the door is left in position, and through a further use of the gauge above mentioned, a mortising machine is mounted over the edge of the door and the door prepared for the insertion of the lock. Additional templates are used for locating and cutting to the proper size, mortises to accommodate the lock face plate, keeper plate on the jamb, etc.

Use of the machine, with other guides and templates, controlled by the gauge, makes it possible to gain out the jambs to receive the head of the opening, or vice versa.

With the door and jambs thus prefabricated, all that is necessary to install the doorway is to nail the jambs in place in the rough opening, keeping them plumb and properly spaced, applying the lock to the door, the keeper to the jamb, screwing the leaves of the hinges to the door and jamb, and applying stop beads and trim in the customary manner.

This machine has made it possible to do all of the work of fitting and hanging doors in less than half the time required when the work is done with the use of the power tools employed without the use of the machine.

Wood doors for hanging in steel bucks have also been prepared, with the same success as for wood bucks.

Perfect workmanship is obtained automatically, since it is not dependent upon the skill of the operator of the tools, except, of course, when the door is actually being hung.

* * *

## Steel Siding for Cantonment Buildings

THREE Army Mobilization Cantonments, Camp Wolters, Mineral Wells, Texas; Camp Wheeler, Macon, Georgia; and Fort Riley, Kansas, each comprising 600 or more buildings of standardized types, are being erected using formed steel siding as an exterior covering material for all types such as barracks, administration, storehouses, recreation buildings, mess halls, medical wards, etc.

As originally planned, all cantonment structures were designed for complete construction with lumber, using, for exterior wall covering, 1-inch wood sheathing, S-4-S, nailed to the 2 x 4-inch wood studs which were normally spaced 3 feet on center, a layer of waterproof building paper applied to the sheathing and a layer of 1-inch drop siding nailed onto the outside.

In northern districts, within the 20-degree-Fahrenheit Zone, a layer of ½-inch insulating fiber board is applied to the inside of the studs. For Southern Zone construction no insulation is used on the inside of exterior walls.

Government authorities, however, decided to allocate certain

cantonments to the use of steel weatherboard siding for the outside covering of exterior walls, as alternate construction, and accordingly made certain changes in the design. These changes consisted of revising the stud spacing to 2 feet on center instead of 3 feet, the addition of some diagonal bracing for stiffness and the addition of ½-inch insulating fiber board to the inside of the exterior wall studs in Southern district buildings. This would result in all cantonment buildings, both in the Northern and Southern Zones, having the same character of wall construction.

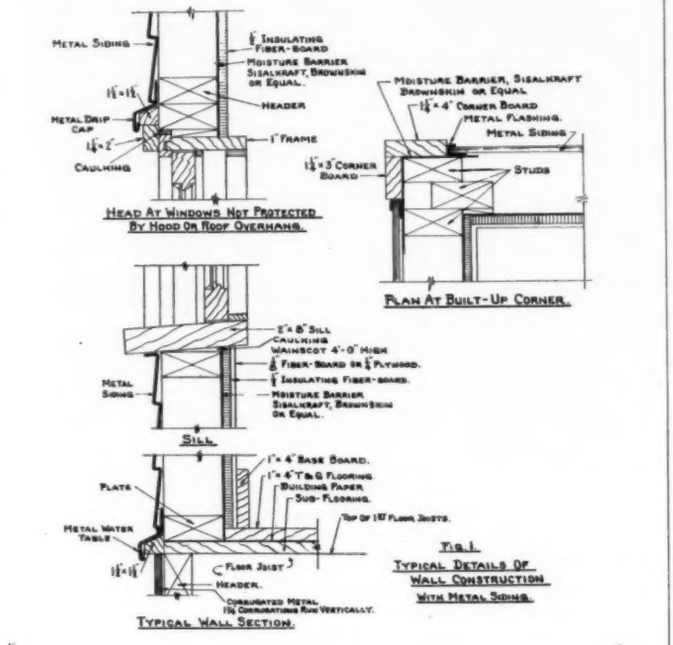
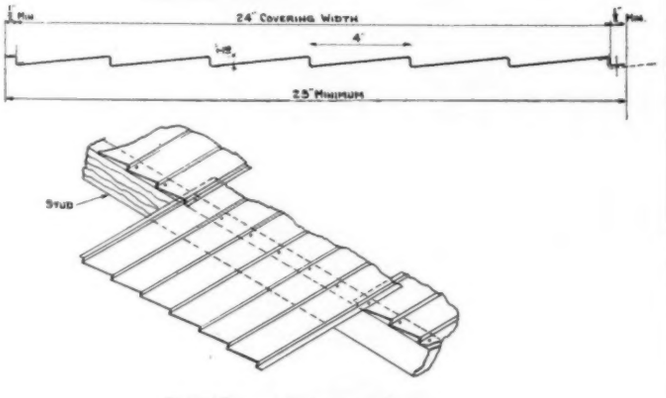



Fig. 1
TYPICAL DETAILS OF WALL CONSTRUCTION WITH METAL SIDING.




SKETCH SHOWING APPLICATION OF SHEETS.

Fig. 2
4" WEATHERBOARD SIDING.

Fig. 1 shows typical details for wall construction with metal siding as developed by the Construction Division, Office of the Quartermaster General, including the various types of trimmings or flashings to be used in connection with its application to buildings such as water table, drip caps for windows and doors, side flashing for windows and doors, corner flashing for outside or inside corners and end wall flashing.

Fig. 2 illustrates the character of the formation given to weatherboard siding sheets, simulating wooden clapboards with 4-inch faces, and the method ordinarily used for attaching it to wood studs.

This siding is formed by passing flat steel sheets, sidewise, through heavy rolls fitted with the required shape of dies. The width of the formed sheet is such as to provide a net covering width of 24 inches per sheet after side lapping and as applied to the structure. Any required length up to 10 feet 3 inches can be furnished, providing a net covering length of 10 feet with 3-inch end lap allowance.

The standard weatherboard siding sheets and the trimmings being manufactured for cantonment buildings are formed from

*(Continued to page 120)*

## *It's Northern Hard Maple and Maple Can Take It!*

No mystery about Maple in the Western Hills Rollatorium, at Cincinnati, America's largest skating rink.

"Our reason," says R. Schaumleffel, President, "for using Hard Maple was that it proved to be the best type flooring that can be used in a skating rink and that it can take a lot of hard wear."

As simple as that, but it tells the story. Every night up to 2100 people take a whirl at the 33,000 square feet of **MFMA** Maple—up to 1200 people at a time—9600 rolling, grind-wearing wheels digging at Maple hour after hour, night after night.

But Hard Maple stands up. This tough-fibred, tight-grained wood, so amazingly resistant to abrasion, takes roller rink punishment like nothing else can, keeps its smoothness—is easily cleaned.

Stamina like this makes Hard Maple the logical choice wherever long life, cleanliness, and low maintenance in floors are the need—in factories and schools, bakeries and stores—and in homes, too. Don't build or remodel without checking Hard Maple.

**MAPLE FLOORING MANUFACTURERS ASSOCIATION**
**1781 McCormick Building, Chicago, Illinois**

*Floor designed, laid in mastic over concrete, by Cincinnati Floor Company. Flooring was laterally nailed and rolled with heavy roller before sanding. Result is a remarkably level, smooth and quiet roller rink floor.*

Floor *with* **MFMA** Maple
(NORTHERN HARD)

## STEEL SIDING— (Continued from page 119)

26 gauge galvanized steel sheets with regular weight of zinc coating for this gauge in accordance with Fed. Spec. Q. Q.-I-696 Class "C"—capable of withstanding at least three one-minute dips by the Standard Preece Test.

After galvanizing, the flat sheets are roller coated on the side to be exposed after erection with one coat of baked-on zinc dust-zinc oxide primer conforming to Fed. Spec. T. T.-641 Type II Class "B."

The paint is baked on by exposure to a temperature of approximately 400 degrees Fahrenheit. The paint being used contains about 9½ pounds of zinc dust per gallon and weighs in excess of 16 pounds per gallon. The finished painted sheet withstands the subsequent forming operations without crazing or flaking of the paint, and in addition to furnishing effective inhibiting value against corrosion, this paint provides a base well adapted to the satisfactory bonding of the two coats of field paint which are to be applied to all buildings after erection.

It has been determined by factory tests that the wall construction using 26 gauge steel weatherboard siding on the outside and ½-inch insulating fiber board on the inside of the stock, provides a structurally sound building.

The combination of steel siding, enclosed air space and insulating board provides satisfactory insulation in all weather zones as well as a pleasing appearance on both the exterior and interior. The insulating value is calculated to be somewhat better than that provided by the standard Southern construction for all wood which consists of two layers of 1-inch boards on the outside only of the studs with no insulating board on the inside.

The interior finish of ½-inch Celotex, or similar material, together with the specified four-foot wainscot of Presdwood and conventional base board, will be much superior in appearance to the bare studs which show in the case of the standard construction in Southern zones.

Application of steel weatherboard siding, with each sheet covering two feet in width and in lengths up to 10 feet 3 inches, ready for use as delivered, is extremely speedy and easy.

Steel siding is nailed directly to the studs with 10 gauge hot galvanized, umbrella type nails, 1½ inches long, one nail at each 4-inch face of the siding into every stud, or every 2 feet. In addition to this nailing a ⅜ x ½-inch galvanized stove bolt is located midway between each stud, passing through the lapped edges of the sheets. This method of attachment results in very rigid construction and will maintain weatherproof conditions.

Practically all sheets can be factory sheared to fit in place on the various types of buildings which have been standardized for cantonments and which are erected in strict accordance with detailed drawings furnished to the contractors by the Quartermaster General's Construction Division.

Such little cutting or slitting as may be necessary in the field for making odd fits is easily accomplished with conventional portable electric driven circular saws equipped with blades specially designed for cutting sheet steel; 26 gauge sheets can be cut by this method at a speed of 10 feet per minute.

## How to Replace Single Sash Window With Glass Block Panel

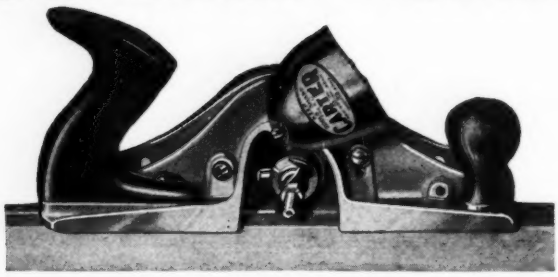
### Screens Objectionable View: Admits Light Needed

IN many homes, a window becomes a necessary evil on the stair landing, end of a hallway, or towards the rear of the house. Light is necessary, ventilation not; and the view undesirable. In this case, one very practical solution is a glass-block panel to replace the window.

Since glass blocks are made in a range of sizes, almost any window can be neatly filled, and any difference made up with a wood trim.

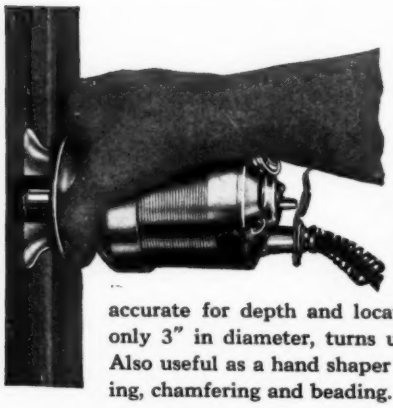
In constructing the panel, the sash, cords, pulleys, and weights are removed, and the existing sill painted with asphalt paint. A wooden frame is constructed to hold the blocks and the new panel installed in place of the former sash. On opposite page,


Save Time--Make Money the Carter Way



CARTER ELECTRIC WEATHERSTRIP GROOVER

One pass of the tool plows grooves in doors, sash or transoms. The 18,000 R.P.M. speed does the work. Cuts to depth of 9/16", from 1/8" to 9/32" wide.



CARTER KERFING MACHINE

A real time saver. So small it fits into the hand, it does the job of kerfing with one stroke, accurate for depth and location. The motor, only 3" in diameter, turns up 18,000 R.P.M. Also useful as a hand shaper for corner rounding, chamfering and beading.

WEATHER STRIPPING

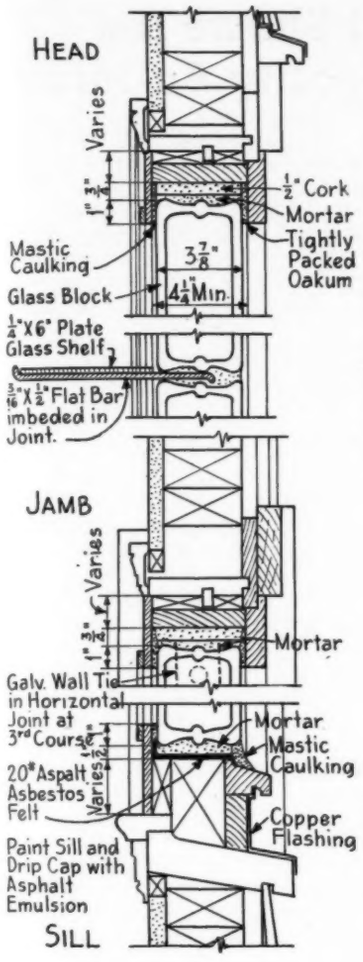
There's plenty of money in weather stripping work if you use these Carter Tools.

CARTER "WASP" PLANE AND WEATHER STRIPPER

It's a money maker. With weather strip cutters it cuts grooves accurately and quickly. With spiral cutter it fits doors, drawers, screens, shutters, transoms, inside trim and window sash. With shape cutters it becomes a miniature planing mill.

PUT THESE CARTER COST CUTTERS on your weather stripping jobs and make real money on competitive bids! Write for demonstration or descriptive folder. R. L. Carter Division, The Stanley Works, 133 Elm Street, New Britain, Connecticut.

CARTER MONEY MAKING TOOLS

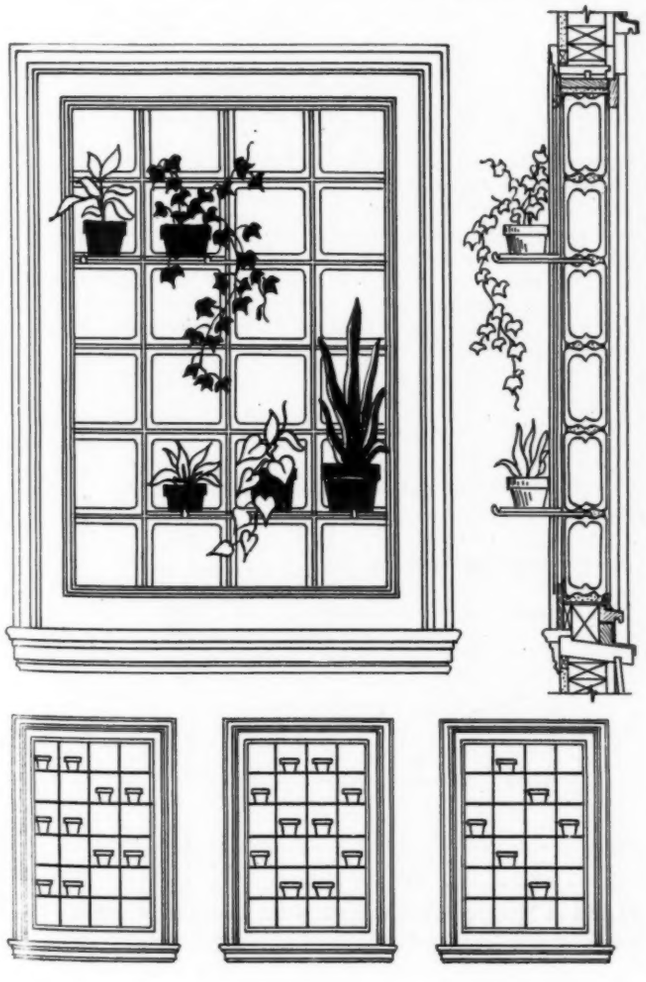



sketch shows where ties, oakum, and caulking should be applied.

Glass shelves to hold flower pots or other ornaments can be provided for by inserting flat bars between blocks at predetermined points at the time the blocks are set. The blocks should be laid with portland cement in the proportions of one part cement and one part lime to four to six parts of sand. A metallic stearate type of waterproofer should be added when the mix is being made.

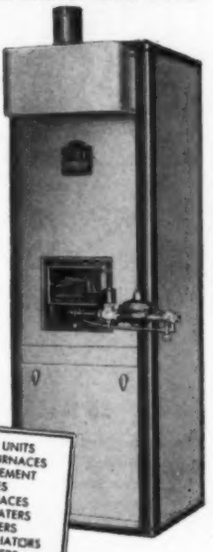
**THE cross section, as detailed at the left in this column, indicates proper construction recommended for adapting ordinary window frame to a panel of glass blocks.**

**BELOW, sketch of panel installation and alternate shelf arrangements as viewed from the front and as suggested by Pittsburgh Corning Corp.**




# THIS *Pacific* UNIT SELLS HOMES FOR YOU THE YEAR 'ROUND

**Winter or summer, this PACIFIC Forced-Air Unit puts double buy-appeal into your homes.**



**IN WINTER** this efficient gas heating unit circulates warm, filtered air to the entire home, keeping it uniformly comfortable at all times, *automatically!*

**IN SUMMER** this same unit supplies the home with *refreshing ventilation*...a feature that really appeals to prospective buyers this time of year!

Yet, this double-barreled selling punch can be installed in your homes very economically. No basement is required, for the unit can be easily placed in closet or service porch without altering floor plans. Exceptionally efficient and built for years of service, this A.G.A. approved unit has many other valuable features *that make homes sell*—fast! There's a Pacific dealer near you...or write direct for complete details on Pacific Forced-Air Heating and Ventilating Units and other Pacific Gas Heating Appliances.

*Write Department AB-2*

FORCED-AIR UNITS
FORCED-AIR FURNACES
GRAVITY BASEMENT FURNACES
FLOOR FURNACES
CONSOLE HEATERS
WALL HEATERS
GAS-STEAM RADIATORS
WATER HEATERS
OVERHEAD UNIT HEATERS

*Pacific* GAS RADIATOR CO.
HUNTINGTON PARK, CALIFORNIA

# *Save* 50% OR MORE OF FINAL COSTS ON WOOD FLOOR FINISHING *With* LIGNOPHOL

**LIGNOPHOL COSTS LESS THAN 1 CENT PER SQUARE FOOT**
*Applied in one application with a long handled brush—reducing labor to the minimum.*
**LIGNOPHOL BEAUTIFIES YOUR FLOORS!**
**LIGNOPHOL LEAVES NOTHING TO WEAR OFF!**
*Shellac and varnish, surface treatments, wear off!*
Do as thousands of contractors are doing: Enjoy more profits, attain greater job satisfaction and save 50% or more by using LIGNOPHOL to preserve and finish your floors.
**FIND OUT MORE ABOUT LIGNOPHOL**

**MAIL THIS COUPON TODAY!**

Dept. B 6
L. SONNEBORN SONS, INC., 88 LEXINGTON AVENUE, N.Y.C.
Your Name_____
Address_____
City_____ State_____

*It's warm now—*
**but chilly days are coming!**

In early Fall it will be too cool for comfort — and not cold enough to start the furnace. For such weather, and as an auxiliary heater during extreme cold spells bathrooms, children's playrooms and bedrooms should be made comfortable with the . . .

*"ELECTRIC"*
FA QUIKHETER

Built flush with the wall, it takes up no floor space. A flip of the switch brings quick, safe heat. The cold air, drawn in at the floor level, is quickly heated and forced out at the top, and begins at once to circulate through the whole room.

**In New Construction and in Modernization**

this attractively finished heater should be included in the plans. Installed now, it will be ready to go into service when needed. It is moderately priced — and worth more than its cost, in both comfort and savings on your coal bill.

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# $66 Fuel Bill Shows the Results of Quality Building

AMERICAN BUILDER'S campaign to call attention to the "low cost of good construction" has brought out many interesting examples from builders to prove the soundness of this idea. There is Builder John Marichak of Westfield, Mass., who is a firm believer in the idea that the *overall* cost of home ownership is what matters to the prospective buyer. He points out that the owner must not only pay interest and amortization and taxes each month, but he must also pay the operating costs connected with home ownership, such as for fuel, electricity and upkeep.

Marichak believes that it is sound practice to build his business on a sound reputation as a supplier of homes that are low cost in practice as well as theory.

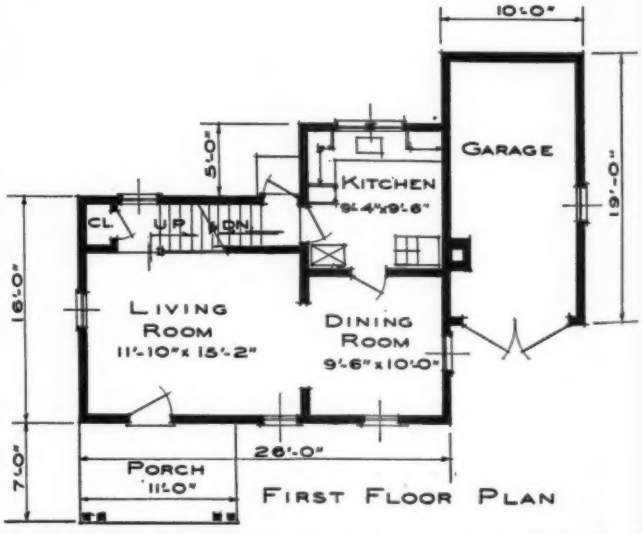
He uses well seasoned 2 x 10 joists instead of 2 x 8's that might get by. He installs 4 inches of quality mineral wool insulation on second-floor ceilings and Celotex insulating board for sheathing on sidewalls. He has laid particular stress on the heating plant, since it is obvious that fuel stands at the head in the operating cost of a house.

To make sure of a soundly engineered heating plant, he called in engineers of The H. B. Smith Company, Inc., whose headquarters are in Westfield—an old New England firm that features boiler and radiator equipment sold on a quality, rather than price, basis. The houses are in the $5,000 to $6,000 price range, and the heating engineers designed an inexpensive quality system that would fit that type of pocketbook. These were one-pipe steam systems, and to make the record interesting some of the houses were equipped with gas-burning units and others with oil burners.

Following the installation, careful records were kept of the use of both gas and oil in two of the houses. In addition, The H. B. Smith Company carried out its policy of helping the builder by making efficiency tests on the heating systems, checking boiler water conditions and giving advice to the home owner on many heating problems that came up. This service was part of the quality job Marichak took on when he bought a quality system.

One of the results of the well-done construction job and the soundly engineered heating plant was a fuel and water heating bill of only $90 in the five-room house illustrated with this article, which was heated by oil. The records were taken during the winter of 1939 and '40 which was a very cold one in Massachusetts. This figure also included the cost of domestic hot water which was heated by the boiler. If an allowance of $2 a month is made for this item the actual fuel cost was only $66.

In a house of similar size in which gas was the fuel, with an identical type boiler and radiator the fuel bill was only $83. This house, however, was not occupied during the winter, al-




**PLANS of John Marichak's quality-built house at Westfield, Mass., insulated and equipped with well-engineered heating plant.**

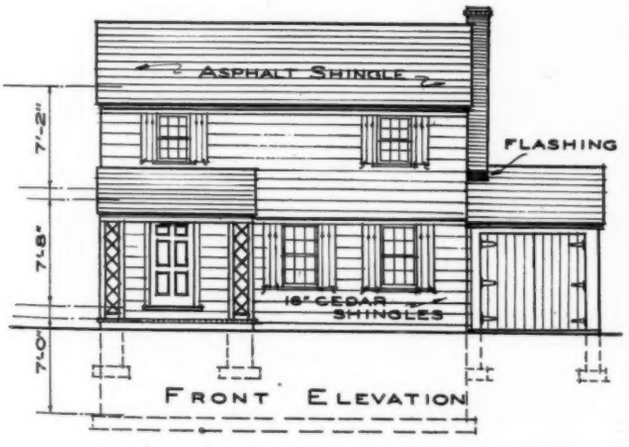
**THIS is the Marichak-built house which cost less to own because it was well built and equipped.**

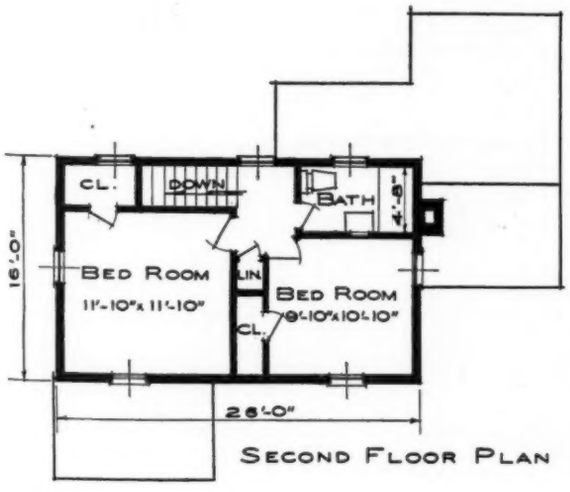
though a constant temperature of 70 degrees was maintained. Gas rates in Westfield are $1.20 per thousand feet for the first 3,500 feet, 80 cents for the next 3,500 feet, and 60 cents beyond that.

It would thus seem that both fuels delivered economy, and that the really important factor in determining low cost operation is a well built house and a well engineered heating plant.

As a result of this maintenance of high standards, even at the expense of momentary profit, Marichak has built up a reputation for building houses that are well worth the money. Every owner of one of these homes has proven a good booster, and there is no doubt that low operating costs on homes already erected are proving a good ad for those which will be offered for sale.

Marichak started building low-cost homes in Westfield in 1938 under the corporation name of Modern Homes, Inc. That year he built and sold four houses and the following year six more. He is planning on ten for 1941.

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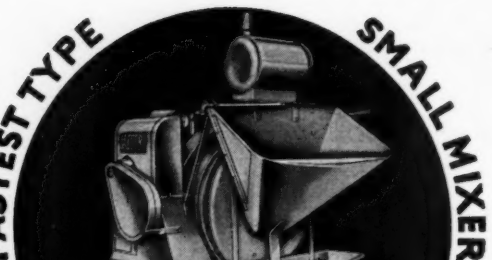


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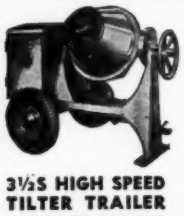

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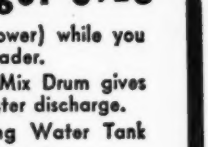

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# Fire Resistance Tests of Plywood-Covered Wall Panels

By
G. C. McNAUGHTON, Senior Engineer,
and
C. A. HARRISON, Junior Engineer

Forest Products Laboratory,[1] Forest Service
U. S. Department of Agriculture

[1]Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

THIS article describes a study conducted by the Forest Products Laboratory of the fire resistance of plywood wall units when exposed uniformly to fire over one face of the structure. The purpose of the study was to learn the degree to which resistance to fire was affected by changing various details of construction, such as kinds of plywood use, width of studs employed, and type of insulation selected.

Most of the tests were made on specimens measuring 2 by 2 feet but the results were generally confirmed by subsequent tests of 4 by 8-foot wall units, and by a test of four such units assembled into an 8 by 16-foot wall at the National Bureau of Standards at Washington, D. C. All of the wall sections were tested without load. Detailed data concerning the tests are available at the Forest Products Laboratory.

Fire-resistance tests were made on single sheets of plywood, and also on hollow or unfilled wall sections in which Douglas-fir plywood of various thicknesses was used on both sides for facing material. The tests included commercial plywood glued with soybean and phenolic-resin glues and also plywood made in the laboratory with these and several other glues.

When subjected to flames, the component plies of plywood glued with all but the phenolic-resin glues separated and, as the ply exposed to the fire became charred through, small pieces curled and dropped away. In this manner a fresh surface of unburned wood was continually being presented to the flames, which, with the roughened surface from the partially burned plies, presented an ideal condition for vigorous combustion. The charring of phenolic-resin-bonded plywood, however, resulted in a flat, checked surface from which the charred pieces did not curl or fall away readily. This type of charring offered protection to underlying layers of veneer and generally imparted some additional fire resistance. A comparison of the performance of phenolic-resin glue and the other glues used is shown in figure 1.

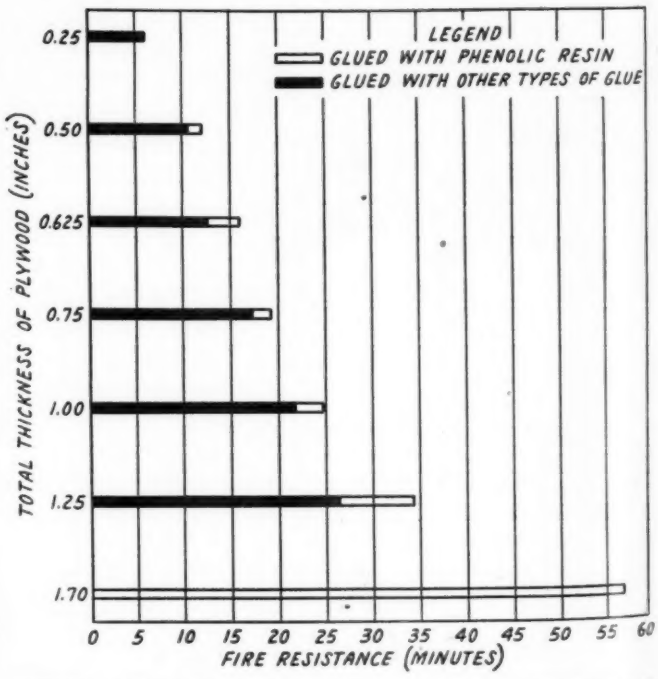


**FIGURE 1.—Comparison of fire performance of phenolic-resin-glued plywood and plywood made with other glues.**

### Effect of Plywood Thickness

The failure of a single sheet of the ¼-inch three-ply plywood occurred consistently after an exposure of about 6 minutes to the temperatures of the standard time-temperature curve. A single sheet of 5/16-inch five-ply plywood failed after 11 to 16 minutes exposure, depending upon the type of glue used and the presence of gaps between the pieces of veneer in the cross bands and core.

For the three and five-ply constructions tested, the resistance was affected somewhat by the number of plies but was related more directly to total thickness. The resistance of the hollow wall sections with uniform width of stud also was found to be almost directly proportional to the total thickness of the two plywood faces.

Most of the comparative fire tests were based upon a Douglas-fir stud or separator ¾ inch thick by 2½ inches wide, although some tests were made with studs of other dimensions. Between limits of 1⅜ and 3⅝ inches, the width of stud or separator in hollow wall panels (distance between faces) had no appreciable influence upon the resistance of the unfilled wall assembly, as the resistance of the plywood faces was the controlling element. On the other hand, when the space between the plywood faces was filled with sufficient insulation of suitable character to afford long resistance, the combined width of stud and thickness of faces was the limiting factor that determined the resistance of the panel.

Three different types of mullions suggested for joining panel units were compared for fire resistance. Failure in the test occurred either at, or close to, the studs which abutted on the mullion, but in none of the small furnace tests did a panel fail because of penetration of heat through the solid mullion.

### Effect of Type of Insulation on Fire Resistance

Wall panels with a variety of insulations in current local use were tested. The insulations may be grouped into reflective, cellulosic, and mineral types.

The reflective type of insulation consisted of kraft paper coated on either one or both sides with aluminum foil. Two sheets of the insulation, spaced ¾ inch apart, were fitted between the separators (studs) and attached by means of furring strips.

After the plywood face exposed to the fire had burned away, the furnace temperatures quickly charred the paper component of the two plies of insulation. The shrinkage accompanying the charring was sufficient to rupture the thin metal foil and expose the second plywood face to the furnace flames. The average additional fire resistance imparted to the wall by the two sheets of the single-faced insulation was less than 2 minutes, and by the double-faced insulation, in most cases, about 6 to 8 minutes.

The following granular or loose types of cellulosic insulation were used in wall sections subjected to fire resistance tests: Planer shavings (untreated), shredded redwood bark (untreated), shredded paper (treated), and wood fiber (treated).

These insulations were laid or poured into the cavities formed between the separators and one face of the panel, before the second face was attached to the test specimen. Especial effort was made to distribute the insulation as uniformly as possible. When the manufacturer's instructions specified the density of fill, these directions were carefully followed. In other instances, the amount of insulation used was selected arbitrarily but was sufficient to fill completely the available space between the studs.

For assemblies containing insulation of loose-fill cellulosic materials, the values for fire resistance were frequently erratic and not dependable. This may be attributed to a decrease in thickness produced by shrinkage checks or by portions of the fill falling away when support was no longer provided by the exposed plywood faces. Occasionally, however, a cellulosic insulation afforded fire resistance comparable to mineral wool insulation.

Some of the material exhibited a tendency to settle when the test speciment was jarred, and produce a hollow region at the top of the test panel. However, difficulty with settling was not confined to cellulosic forms of insulations.

Certain of the cellulosic insulations, particularly the untreated shavings and the untreated redwood bark, showed a decided tendency to continue glowing after all visible flames had been extinguished, but in those materials which had been given fire-retardant chemical treatment, this tendency appeared to have been practically eliminated.

Panels were tested containing two cellulosic insulations in

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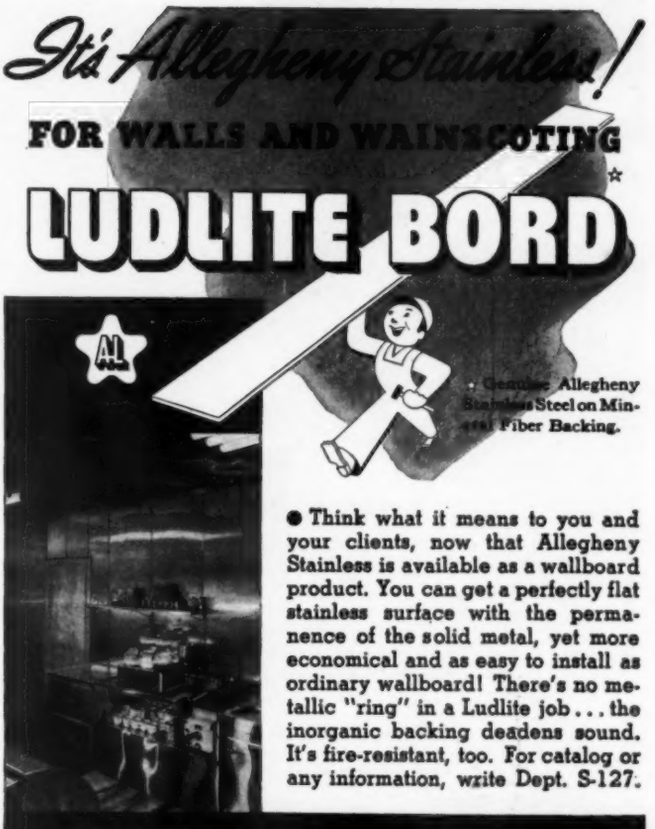


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## FIRE TESTS— *(Continued from page 125)*

blanket form. Both insulations had apparently received chemical treatment to retard flame and glow, but neither showed outstanding resistance to fire. Shrinkage upon charring, and the development of cracks through which furnace heat was brought directly upon the second or rear plywood face, interfered, in both cases, with high fire-resistance.

### Mineral Types of Insulation. Loose Types

Panels containing either of two general classes of the loose form (in distinction from batt forms) of mineral insulation were investigated,

(a) Those containing the expanded mica type of which one kind was tested;

(b) those containing the nodulated and loose mineral wool types, of which nine kinds were tested.

The granules of the expanded mica insulation flowed out of the panel into the furnace as soon as the flames had burned a hole through the exposed plywood face, thus withdrawing all protection from the upper portion of the specimen. Attempt was made to retain the insulation by using a wire screen between the studs and the exposed plywood face, but this was not entirely satisfactory because, when red hot, the screen bulged enough to permit settling of the insulation. Nevertheless, the presence of the screen increased the fire resistance very substantially.

The difficulty of installing the nodulated and loose types of mineral wools uniformly became apparent early in the tests. Even those wall sections into which the nodulated insulation had been "blown" by an insulation company's local representative, did not possess the uniformity desired. Further difficulties were encountered with some material of this character when a comparatively slight jarring of the test specimen caused settling of the insulation, and the formation of hollow areas at the top of the test panel. When properly installed, these types of mineral wool afforded excellent insulation and as a rule the slight fusion of the surface in contact with the fire prevented pieces of the insulation from falling out of the 2 by 2-foot test specimens.

Tests of panels filled with the batt type of mineral wool insulations permitted a study of 10 different varieties of batts. The use of the batt insulations facilitated the construction of test sections but emphasized the lack of standardization of product by the various manufacturers. Some brands exhibited a wide range of density in different parts of the same batt, in different batts of the same carton, and between subsequent purchases of the same brand.

The fire resistance secured, by the use of all the mineral wool batt insulations, was closely related to the density of the batt. The different varieties of batt exhibited somewhat different fusion and shrinkage characteristics that frequently had a bearing upon fire resistance, but usually were of far less importance than the density of the batt.

Values for the fire resistance of wall sections filled with different amounts of the various mineral wool batt insulations are expressed graphically in figure 2. It may be noted that when the thickness of plywood faces was ⅜ inch or less, the choice of insulations which gave a fire resistance of 1 hour was exceedingly limited but ¾ or ½-hour resistance was furnished by a number of batt insulations.

### Test on 4 by 8-Foot Wall Units

Following the study of 2 by 2-foot wall sections, 15 full-sized units measuring 4 by 8 feet and filled with various typical insulations were tested. In assembling these plywood wall units for fire tests, attempt was made to duplicate the fastenings, trim, and similar details used in erecting prefabricated houses at the Laboratory.

Tests of the assembled panels confirmed the necessity that the insulation be carefully selected and uniformly installed in the wall unit, as previously reported for smaller test specimens, and emphasized the importance of details in assembling the panels. Unless suitable precautions were taken with the various joints in the assembly, the fire performance of the unit was limited to approximately 30 minutes, regardless of insulation. However, by caulking between the meeting edges of the plywood, on the unexposed side of the assembly, with a mastic, or by tacking the edges of the panel to the mullions and plates, the amount of

air infiltration around the edges of the test panel was reduced and the fire resistance became dependent chiefly upon the insulation employed.

Retention of the insulation in the 8-foot high panel compartments, for the most part, was surprisingly good, but was better when the exposed face of the panel consisted of phenolic-resin-bonded plywood than when it was soybean glued plywood. In both cases the deformation of the ¾-inch thick studding upon charring produced irregular surfaces which aided definitely in keeping the insulation in place but some of the char from the resin-bonded plywood face usually adhered to the studding and offered further support for the insulation.

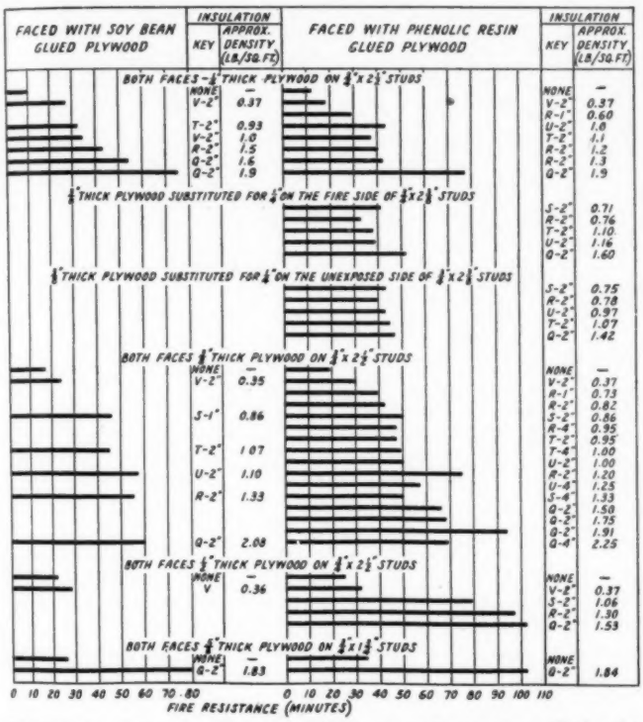


**FIGURE 2.—Fire resistance of plywood wall sections filled with various amounts of mineral wool batt insulation.**

During a few tests, the insulation fell out of the larger assemblies, contrary to its performance in the 2 by 2-foot sections; but the results with most types of insulation compared rather favorably with those anticipated from the work on the smaller specimens.

Later, four 4 by 8-foot by 3-inch thick insulated plywood wall units, with necessary connecting members, were made at the Forest Products Laboratory and shipped to Washington where they were assembled into a test wall 8 feet high by 16 feet long in the panel furnace at the National Bureau of Standards. Details of construction of the units were as follows:

Framing members—¾ by 2⅜ inches thick Douglas-fir.

Plywood face (exposed to the fire)—¼ inch phenolic-resin-glued Douglas-fir.

Plywood face (not exposed to the fire)—⅜ inch phenolic-resin-glued Douglas-fir.

Insulation compartments—10⅜ inches wide by 7 feet 7⅞ inches high.

Insulation used—Type "Q" batts—2 pounds per square foot.

Moisture barrier—A strip of tarred sheathing paper (50 pounds per 500 square feet) in each compartment between the ¼-inch plywood face and the insulation.

Treatment of joints—The vertical joints on the unexposed side were caulked with mastic. The edges of the panels on both sides were tacked to the 2½ by 2⅜ inch mullions and 1¼ by 2⅜ inch plates with four-penny nails on about 3-inch centers.

None of the insulation fell out of place either during the test or when the supporting frame was removed from the furnace after a 1-hour exposure to standard test conditions, and the joints did not contribute to ultimate failure. The test wall resisted exposure to the standard fire conditions for 52 minutes before sufficient heat was transmitted through the insulation to produce

*(Continued to page 128)*

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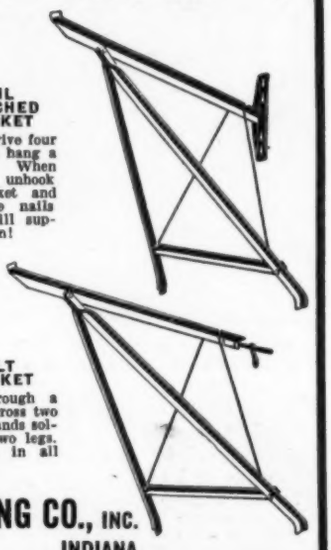

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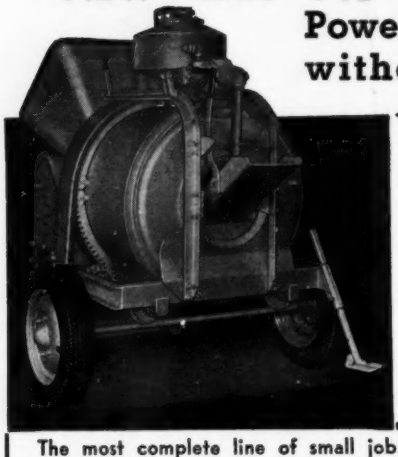

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## FIRE TESTS—*(Continued from page 127)*

a temperature rise of 250° F. on the face away from the fire. It was evident from the work reported in the study of 2 by 2-foot sections that slight modifications in the construction of the panels would have secured resistance of a full hour.

### Summary and Conclusion

The study made on test sections of the stress-covered type of prefabricated plywood wall panels has shown, from considerations of heat penetration alone, that it is possible to vary their fire resistance from about 10 minutes to more than an hour.

Resistance varying from 10 minutes to more than 30 minutes was secured on uninsulated, unpainted wall sections, depending upon the thickness of plywood faces, the type of glue used in bonding the veneers, and the care in joining the veneers of core and cross banding. Plywood made with phenolic resins offered more resistance than that made with other glues.

When testing single wall units the insulation used between the faces was found to be the most important factor contributing to fire resistance. The reflective insulations used ordinarily increased the resistance between 2 and 8 minutes above that of uninsulated wall sections. Cellulosic insulations as a rule added from 6 to 40 minutes, but not all were thoroughly dependable. Vermiculite insulation (unsupported) imparted no additional fire resistance. Nodulated types of mineral wools were capable of adding from 20 to 40 minutes resistance but could not be relied upon consistently owing chiefly to the difficulty of securing uniform distribution in the plywood panel.

Some of the batt forms of mineral wool insulation occasionally increased the resistance to more than an hour. The amount of additional fire resistance secured with insulation of this type was generally proportional to the density at which it was applied in the wall panel. For rough approximations, a batt filling installed at a density of 0.8 pound per square foot could be expected to offer increased resistance in the general range of 20 to 25 minutes; at 1.0 pound per square foot around 25 to 30 minutes increase; at 1.5 pounds per square foot around 30 to 45 minutes increase; and at 2.0 pounds per square foot around 35 to 55 minutes increase over the unfilled section.

In assemblies of heavily insulated panels, high fire resistance was obtained only when strict attention was given to the treatment of the joints between the different wall units.

* * *

# Home Modernizing Pointers

## Suggested Reconditioning Practices from HOLC

PERTINENT ideas on home repairs and modernizing are presented in a booklet entitled "Approved Reconditioning Methods," recently issued by the Dallas Regional Office of the Home Owners' Loan Corporation to its field force. Some of the points suggested are outlined in the following paragraphs.

In determining whether extensive reconditioning is justified, the location, neighborhood, and type of surrounding property are as important as the house itself.

FOUNDATIONS: In some areas unusual soil conditions often cause foundations to be faulty. These faults should be corrected before bids are taken on the remainder of the job, for additional unforeseen repairs may result from work on the foundation.

### The Value of Decorative Reconditioning

ROOFS: Staining a wood-shingle roof not only freshens up a property but prolongs the life of the roof. On the other hand, a new roof may be less costly in the long run than repairs which extend the life of the old roof not more than a year or two. In some instances a different kind of roof may be more in keeping with those on better properties in the neighborhood. When a new roof is to be applied, it is better construction practice to remove the old one.

PORCHES: Large, obsolete porches are often expensive to repair. An attractive and economical way to replace them is with neat, modern covered entrances or stock Colonial entrances and

doors. To freshen up discolored cement porches and steps, a good cement paint should be applied to the entire surface. Cement or brick terraces can often be improved by installing iron banisters.

Structural repairs frequently do not show and regardless of their necessity have little effect on the salability of a dwelling. Most purchasers are more influenced by decorative reconditioning such as new paint, styles and fixtures.

PAINTING: Trends in exterior color schemes for different localities and sections may be determined by inspecting the newly built homes in those areas. Although white or light cream as an exterior color is preferred in most sections of the Dallas region, more practical colors can be used in areas affected by smoke or dust. Muddy or somber-colored masonry or stucco residences may be made appealing with light-color masonry paint which also helps to create an impression of spaciousness. Dark masonry residences, on which the brickwork has been noticeably pointed up, can be improved by painting the exterior masonry, a touching up any paint-smeared brickwork with a liquid mortar-color solution.

The selection and use of interior painting and wallpaper are important factors in the salability of a house. In rooms not having running water, the most popular colors for interior trim are ivory and milk white, while white enamel is preferred in kitchens and baths. In every room, the trim and wall covering should contrast with the floor covering.

WALL PAPER: Important—even one room with poorly selected paper and trim can spoil the color harmony of the entire house. Swatches containing wallpaper suggestions for each room as well as ensembles for an entire house can be easily obtained.

FLOORS: Machine sanding is necessary on hardwood floors showing signs of age, cupping or heavy wear. Pine floors in less expensive properties should be thoroughly cleaned and painted. In most instances, it is impractical to refinish only a portion of the floors in a house because the displeasing contrast between the old and the refinished floors creates a definite sales resistance.

KITCHENS AND BATHROOMS: Since the housewife spends much of her time in the kitchen, its wall and floor coverings should be gay and vivid. Painting the inside of cupboards and drawers a bright color in contrast to the walls creates an appealing effect. Wooden or other unsatisfactory drainboards should be replaced with metal-bound battleship linoleum or tile drainboards. When needed, new cabinets should be installed. Ample and conveniently placed electric service outlets take care of the many electrical appliances used by the modern housewife.

The bathroom can be made gay and cheerful by colorful wall decoration. Its appearance can be further improved by replacing the old and tarnished fittings on plumbing fixtures with new chromium ones, and, if the type of property justifies it, by replacing an old leg-tub with a built-in tub and a wall-hung lavatory with a pedestal one. A medicine cabinet is essential in all properties, with better homes having one of metal and recessed in the wall.

ELECTRICAL FIXTURES: The uses of electricity are so varied today that ample and conveniently located service outlets must be provided in every house. Dropcords in almost every case should be replaced by wall switches and soiled or discolored fixtures should be painted or replated.

YARDS AND LANDSCAPING: The expenditure on landscaping, shrubbery, etc., depends on the location and character of the property. However, a practical gauge is: $20 on properties the sales price of which is under $3,000; $25 on those between $3,000 and $4,000; and $5 more for each additional $1,000. Planting should be done at the start of the reconditioning program in order that it may be cared for while construction work is in progress. Before approving and accepting a reconditioning contract as complete, all trash and debris must have been removed from the site and the premises thoroughly cleaned.

### Where Reconditioning Is Not Worthwhile

Knowing when *not* to recondition is equally as important as knowing how to recondition. In numerous cases it is wiser in the long run to accept a loss and either sell the property "as is" or make only the barest possible preservative repairs, for modernization does not always increase the sales price of real estate. The type of architecture, the structural condition of the house, the neighborhood, location or general economic conditions in the community may be such that the house could not be sold at a higher price even after reconditioning.

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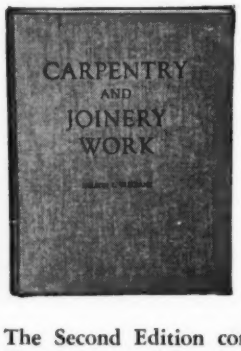


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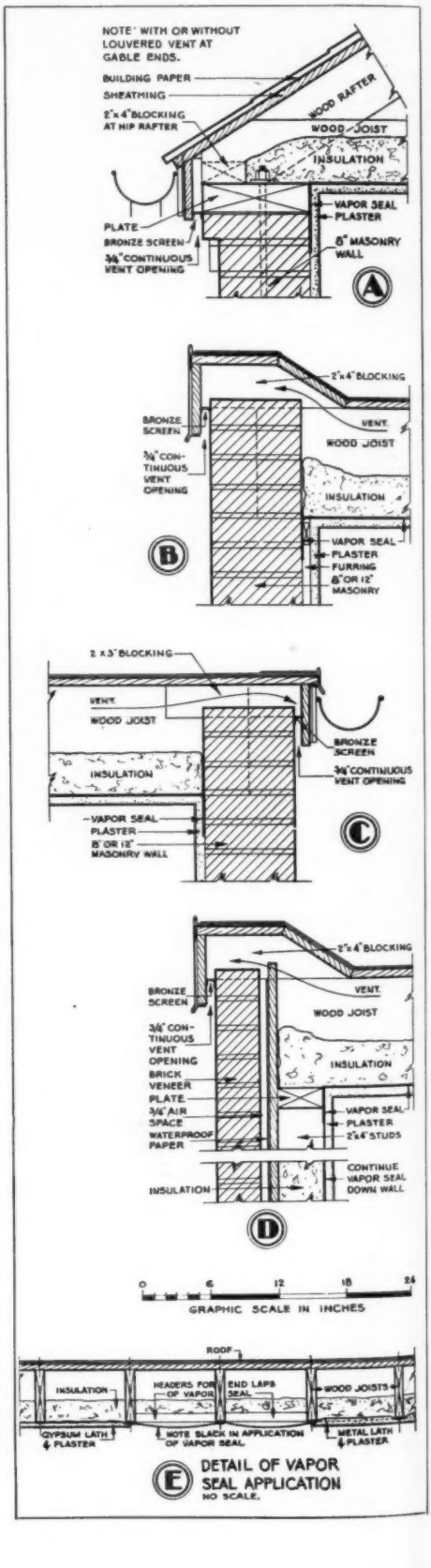
## How to Ventilate Insulated Roofs

AFTER careful research by USHA under the direction of A. C. Shire, the details shown on this page were prepared to cover the very important problem of properly ventilating insulated roofs. Such a procedure has a great bearing on summer comfort since accumulated dead air space heat will greatly raise the temperature of the rooms directly below.

It is recommended that the practice shown here be used in combination with a vapor barrier to guard against condensation. Note particularly the method of detailing flat roofs so that every joist space is ventilated. Integral vapor barriers are not shown, but are approved.

Findings of the University of Minnesota Experimental Station indicate that for pitched roofs, louvers at opposite ends should have a minimum of ¼ square inch for each square foot of horizontal ceiling area.




**DETAIL A: Above-ceiling insulation properly vented in pitched roof, wood joists and rafter construction. Detail B: Flat roof on wood joists. Detail C: Similar type roof with metal gutter.**

**DETAIL D: Construction pointers for proper ventilating air space between insulation and roofing on brick veneer wall construction with flat roof on wood joists. Detail E: Vapor-seal application details.**

## Experimental Paneled House

*(Continued from page 77)*

the place of excessive hand labor. Extending the acceptability of hardwood species in house construction depends largely on substituting mechanical and shop work for manual work on the building site. It is the aim of this development also to avoid the rough, cheap, and out-moded appearance ordinarily associated with the use of short lengths in building and to suggest forms for wood products from low grade that are in line with trends in present day architecture.

Technically, the aim of the development is to provide inexpensive and rapid assembly of solid wood cuttings into shop-made panels, and of panels into wall and floor structures for both exterior and interior coverage primarily without gluing; to provide methods of compensating for the deleterious effects of swelling and shrinking that take place in solid wood, especially in panel form; to provide proper protection to the increased amount of end grain wood that is exposed to the elements when short lengths are used on exteriors; to provide an insulated, moisture-resistant panel and wall assembly with surfaces suitable for exterior and interior use; by means of as complete fabrication as possible at centralized plants to facilitate the technical control of the finer points of construction detail and carry out operations not feasible with the use of stock items of lumber, viz., where desirable the application of preservative treatments, aluminum priming, end grain and joint coatings, predrilling, prefinishing, etc.

In essence the system illustrated in this report involves the use of shop-finished building panels of uniform size for all parts of a house except the framing and roof. The individual panel is two stud spaces in length and the width of one, or typically 16″ x 32″. A certain proportion of half panels, 16″ by 16″, would be used. The panels are made of relatively narrow cuttings nominally 1 inch in thickness. They are of non-glued construction (except as an alternate for painted walls where, under certain conditions, edge-glued assembly may be used) with special treatment of joints to provide weather tightness for exterior walls and decorative appearance for interior surfaces. The fact that relatively small cuttings are used in the panels means that a wide variety of low-grade and lesser-used species as well as standard species can be brought into utilization in this form of construction, either in natural or painted finish.

The panels are for use in so-called curtain wall construction where conventional framing erected on the site is braced sufficiently to carry the full load without reliance on the coverage material. They are further intended for use in a modular system of building layout in which spacing of framing members, dimensions of rooms, location and size of openings conform to standard 16″ module.

Pertinent features of the structural system are as follows:

(a) The use of shop-made panel units for exterior and interior walls, ceiling, and floor, typically 16″ x 32″* (plus certain proportions of half-panel units, 16″ x 16″).

(b) The exterior panel as shown is made up of 3-inch strips tongued and grooved to special water-resisting joint at edges and ends; assembled by two cleats on the back near the top and bottom edge. The panel reaching across two stud spaces is locked to the framing by the horizontal mullion bars. Although additional fastening is probably not necessary, if desired the panels would be face-nailed to the studs at six points.

(c) The horizontal mullion bars of random lengths lock the panels together at the top and bottom edge and pitch the water away from the top and bottom of the panels.

(d) Conventional framing is used, except for minor features, with particular attention to the size and location of window and door openings so that the standard spacing of studding and joists (consistently on 16-inch spacing) will be maintained as uniformly as possible to minimize cutting of panels on the job.

(e) For small one-story houses no sheathing or sub-flooring is used. Diagonal bracing of the framing according to good present practice is contemplated for purposes of stiffness.

(f) The window construction is important in order to adhere to the 16-inch module and avoid necessity of cutting panels. There are various alternatives, but thus far a bank of narrow casement sash has been used, let in between the studs without the usual framing. The stud is used as a part of the window jamb and the balance of the window frame is simple and economical. From sev-

* A wider unit, viz., 24″ x 32″ or 48″, may prove advantageous under some conditions.

*(Continued to page 132)*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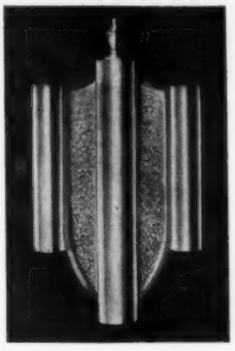

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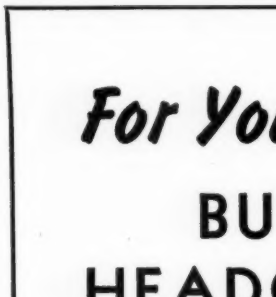

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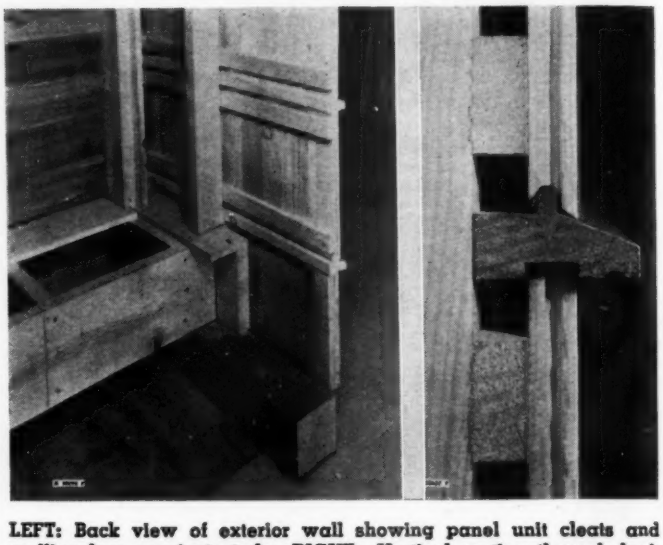
## Experimental Paneled House

*(Continued from page 131)*



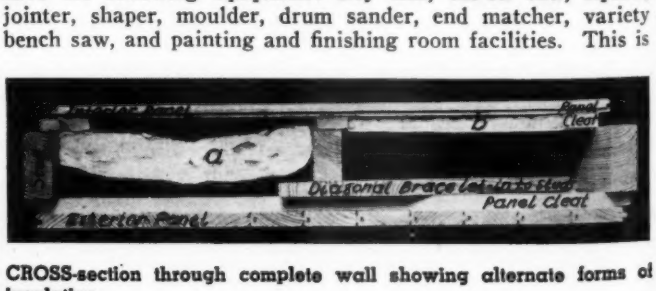
**LEFT: Back view of exterior wall showing panel unit cleats and mullion bars against studs. RIGHT: Vertical section through horizontal mullion bar showing rain protection.**

eral points of view this window treatment appears to be flexible and satisfactory.

(g) For the fullest realization of the economies accruing to this system of house construction the 16-inch module must be adhered to in planning the building. Adherence to such a module brings up both advantage and disadvantage according to the point of view. Although the system is flexible with respect to size and shape of building and permits numerous variations in design it is not adapted to some of the architectural features, such as build-up entrance features, bay windows, complicated dormers, circular windows, and blinds and fancy shutters, that builders oftentimes put into small low-priced houses to give them so-called individuality and dressed-up appearance. To some this will be a disadvantage. Others will consider it an advantage in that it will encourage the elimination of imitative and relatively costly "frills." This type of house will look better without frills than with them, relying for its attractiveness on simple lines and good proportions. However, the pattern lends itself to various treatments in design which architects seem to favor in modern construction. It is believed that one of the advantages of this panel form of product is that it permits designers to create new effects in wood construction, and to use wood "set off" with new products that have undoubted appeal; such as glass brick, plastic tiles, chromium strips, etc., that are rather incongruous with traditional wood construction.

In general the most favorable conditions for the application of the method would appear to be those of a small strictly modern plant designed particularly for the purpose of building-panel manufacture, equipped to handle low grade lumber, logs, or bolts efficiently, and located within or close to the consuming territory which it is to serve so that there can be a close association between supplier and builder. It appears to be an undertaking for numerous, scattered plants. If it proves successful advantages should accrue to the buyer of a house, to the employment of labor, and to utilization of low quality timber.

Without having made any close analysis or study of this phase of the subject it seems reasonable to assume that a plant adapted to production of the panels on an efficient basis would have the following equipment: Dry kiln, cut-off saw, ripsaw, jointer, shaper, moulder, drum sander, end matcher, variety bench saw, and painting and finishing room facilities. This is




**CROSS-section through complete wall showing alternate forms of insulation.**

in addition, of course, to the ordinary sawmill equipment.

A nailing machine might or might not prove more efficient on a moderate production basis than simple table templates and jigs for hand nailing. A glue spreader and clamp carrier would be necessary, of course, if any panel stock were to be produced by edge gluing.

All new equipment of the above items, including building and power, would probably cost in the neighborhood of $40,000 for a plant capacity of approximately 15,000 square feet of finished panels per day or sufficient to build three five-room houses. Roughly a five-room house will require 5,000 square feet of panels for inside and outside walls, ceiling, and floor, not including framing and roof structure. A made-over plant or one with good used equipment would represent a substantially smaller investment, perhaps as low as $15,000.

(h) In all cases the finish, at least in part, is better and more cheaply applied in the panel-assembly shop than after installation on the walls. Prefinishing is especially advantageous in solid wood panels because it permits the use of special end coatings where necessary and the tongue and groove can be finished the same as the face, hence the opening of joints does not expose raw wood and is not so disfiguring as in the present conventional methods of handling lumber for paneling.

Along with the panel plant a sawmill would be required for a self-contained unit unless the plant were to operate on low grade lumber from mills already in the vicinity. A new small sawmill with the equipment required for the efficient handling of bolts and short logs along with the building and power unit would perhaps cost $6,000.

If the component pieces of the panels were purchased worked to pattern from a sawmill-planing mill and shipped in bundles to a panel-assembly shop, the equipment requirements at the fabricating end would be substantially less than above.

It is virtually impossible for us in the present status of knowledge of the panel construction project to venture any close estimates of production costs and savings in building costs.

As rough indication of what the manufacturing costs may be, the following figures are used:

| | |
|---|---|
| Rough lumber per M | $15 |
| Seasoning | 5 |
| One-third waste on the above | 7 |
| Cutting and ripping | 5 |
| Dressing and moulding | 3 |
| Assembly into panels | 7 |
| Prefinishing | 8 |
| For exterior, mullion bar per M feet of panels | 7 |
| For interior panels, sanding | 3 |
| For interior panels, insulation and building paper | 10 |

The interior panels, insulated, will cost somewhat more than the exterior panels plus the mullion bars. Not all the interior panels will require insulation, but for rough calculation let us assume that, including the mullion bars, all panels will average $60 per M prefinished.

The exterior panel at $60 per M board feet would be somewhat more than the cost of the sheathing material, outside the lumber-producing territories, that would be used in a small conventionally-built house. Within a lumber-producing territory it might be $30 more than the cost of sheathing for those who can buy direct from a small mill. Under most conditions the $60 would be perhaps half the cost of the sheathing, siding, and paint (not installed) that would normally be used. This comparison, of course, is on the basis of present prevailing construction—not on merely a drop siding or weather-board house without sheathing such as is used in the very cheapest construction in some parts of the country.

The interior panel at $60 per M board feet would be perhaps a third of the cost of the lath, plaster, paint, and trim (all in place) that would normally be used on an interior wall and about a third of the cost of a hardwood floor installed, sanded, and finished in the conventional way. It will be noted that the costs of the panels as used here do not include distribution and installation. No attempt is made here to estimate these costs. The indications are that the costs of installing the prefinished panels, if the modular system of layout be followed, are substantially less than the costs of installing standard unfinished materials in the conventional system of building.

Only a pilot plant test, or its equivalent, including the actual construction of houses that people can see and react to, can establish the validity of any of these points.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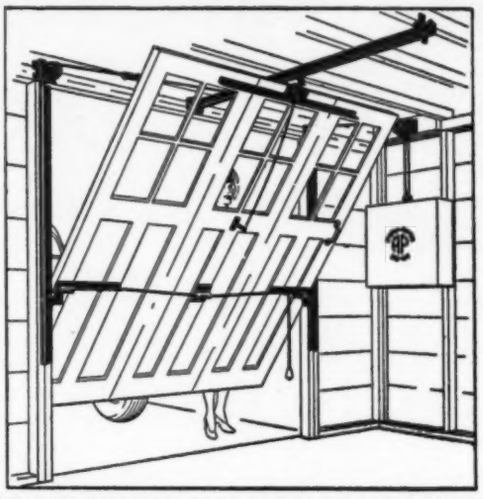

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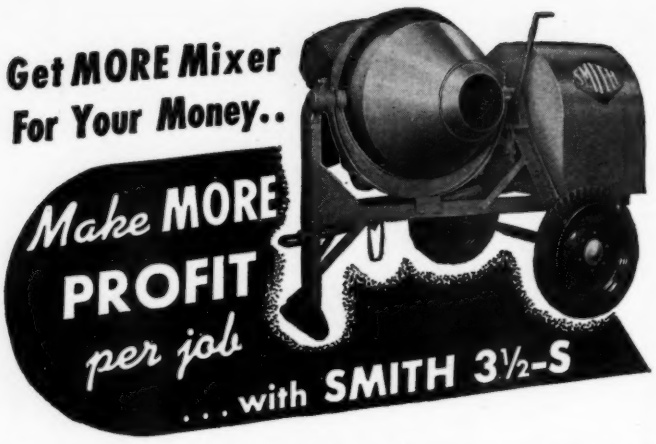


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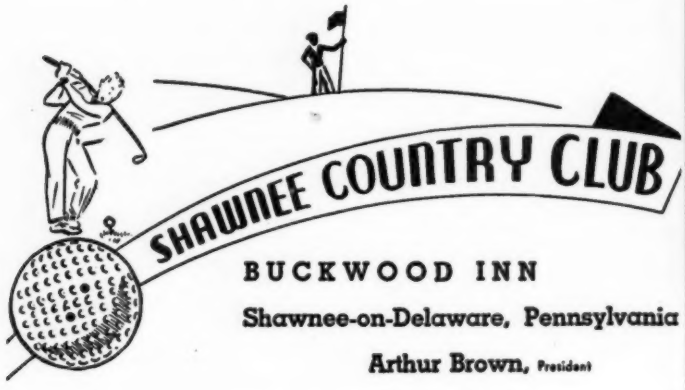
**You really get more mixer value and more profit per job when you invest in SMITH 3½-S Tilters: MORE *loading* speed, due to BIG 31" wide FEED CHUTE, waist high . . . MORE *mixing* speed, MORE *quality* concrete, due to famous Smith END-TO-CENTER mixing action . . . MORE *discharge* speed, due to short 40° tilt-and-pour combined mixing-discharging action . . . MORE machine value, too, in the Smith enclosed crankcase engine, machine cut gears, anti-friction bearings, spring-mounted axle, pneumatic tired disc wheels.**

**More machine, more performance, more profit for you! WRITE FOR LITERATURE!**

**The T. L. SMITH COMPANY**
**2849 N. 32nd St. Milwaukee, Wisconsin**

**SMITH MIXERS**
THE BOULDER DAM MIXERS






**BUCKWOOD INN**
**Shawnee-on-Delaware, Pennsylvania**
**Arthur Brown, President**

A summer country home with a championship golf course! In the Poconos, only 85 miles from New York or Philadelphia, on the Delaware River near Delaware Water Gap.

Shawnee Country Club, scene of the annual Shawnee Open and the 1938 P.G.A. Championship.

Right at the first tee, with golf privileges for guests, BUCKWOOD INN, modern concrete and hollow tile American Plan Inn featuring the utmost in cuisine and comfort.

Swimming in a Hollywood pool overlooking the Delaware River; tennis, fishing, riding, etc. Exclusive clientele; for rates and reservations, address:

**ARTHUR BROWN, *President***
**BUCKWOOD INN • SHAWNEE-ON-DELAWARE • PA.**


## "We Manufacture Our Prospects 2 Years Ahead"

*(Continued from page 75)*

Thus, the residents of Highland Park, through their own Community Club, have become the strongest boosters for the development.

Back of this fine community spirit lies the original planning of the project that made it possible. Ninneman's slogan has been, "Highland Park—yesterday, virgin land; today, a thriving modern community; tomorrow, a city that was well planned." He has also used the slogan, "Highland Park on the march to better living—a refined community, carefully planned to be modern today, tomorrow and 20 years from now." Streets were laid out according to a modern plan by landscape architects McCloud & Scatchard, of Harrisburg. The streets are curving and avoid the old-fashioned gridiron plan. Plots are large, and the location of houses carefully studied. Restrictions are high and no homes are built except by the developer. Thus, Ninneman can honestly advise that home owners who buy at Highland Park will be protected and can be sure of a restricted, modern community even after twenty years.

Ninneman is active in local civic and building activities and is a member of the Harrisburg Builders' Exchange, which is affiliated with the National Home Builders' Association. The Builders' Exchange annual home show in Harrisburg is an outstanding event of the year, attended in recent years by more than 50,000 people. Ninneman built a model home at one of these shows and has taken an active part. He believes that everyone in the building industry profits by organized promotion of the type that the builders' show makes possible.

At Highland Park a lively private home show is also put on, consisting of the extensive featuring of a model home. One of the most outstanding of these was "The Dolly Madison—the home designed a year ahead of the times." At the time of the opening last September Ninneman purchased a double-page spread in the

HARRISBURG BUILDERS EXCHANGE INCORPORATED
Dependability Service Workmanship

**Buy With Confidence!** **Buy With Confidence!**

**MEMBERS OF THE HARRISBURG BUILDERS EXCHANGE AND THE HARRISBURG CHAMBER OF COMMERCE**


**BUILDER NINNEMAN holds the ribbon for Mayor Howard E. Milliken at opening of Harrisburg Builders' Exchange Building Show, one of the biggest in the country. Assisting are Robert Mumma, chairman of the Builders' Show; Leo A. Kirk, FHA director for Eastern district of Pennsylvania; and Senator George Wade. Below: Insignia of Builders' Exchange.**

local newspaper describing the Dolly Madison in detail, and on another two-thirds page advertising described the working of his home builders' budget plan.

One of the clever features of Ninneman's advertising of his model home was small sketches illustrating the outstanding construction features, such as the insulation, double floors, automatic water heater, built-in cabinets, air conditioner, lighting fixtures, etc. This home, which is illustrated with this article, was advertised as available at a cost of only 99 cents a day. "Never before in all history," read Ninneman's advertising, "has a moderate-priced home offered so many new features that you thought only the rich could afford. Now all these are yours, at a price to fit the average purse." Construction materials and equipment used in the Dolly Madison, which are typical of Highland Park work, including the following:

EXTERIOR—Glen-Gery brick.

BASEMENT—Full basement with 8" concrete block walls, 4" concrete slab laid on cinders.

FLOORS—E. L. Bruce hardwood floors laid over well-nailed subfloor.

PLASTER—3 coats plaster over ½" USG Rocklath, well furred from brick.

MILLWORK—Curtis millwork, doors and trim.

PIPING—Copper piping throughout.

BATH AND SHOWER—Fully tiled bathroom with Standard plumbing fixtures.

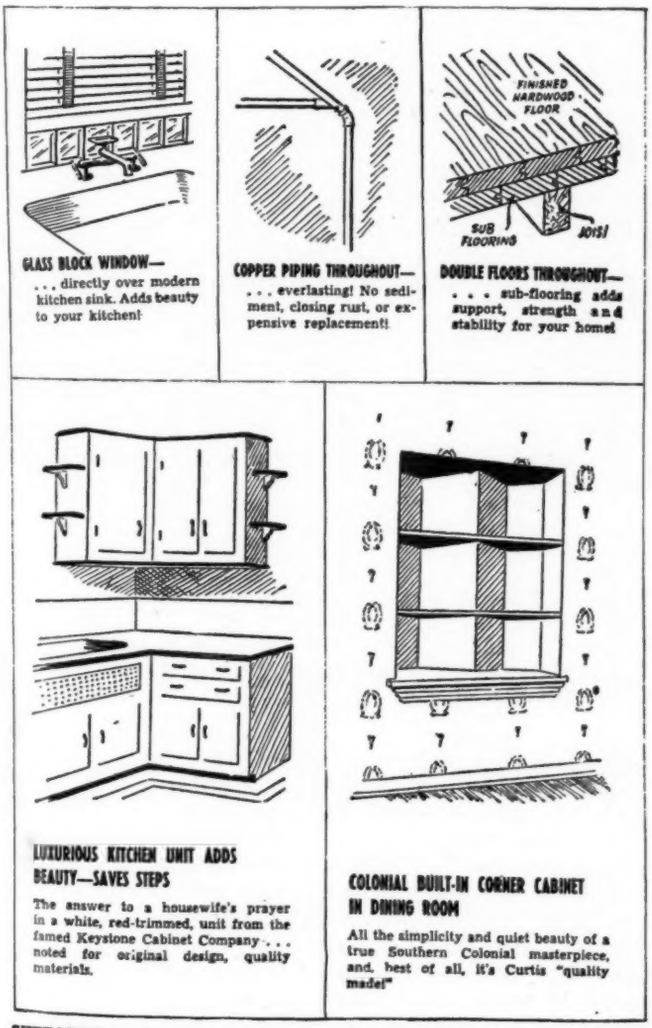
KITCHEN CABINETS—Keystone Cabinet Co.

WINTER AIR CONDITIONING—Quiet May oil fired winter air conditioning unit, fully automatic, provides humidification and forced circulation.

RECREATION ROOM—Recreation room in basement with pine-paneled walls, built-in shelves and deep red concrete floor.

GLASS BLOCKS—Pittsburgh Plate Glass.

HARDWARE—Corbin.




**GLASS BLOCK WINDOW—** . . . directly over modern kitchen sink. Adds beauty to your kitchen!

**COPPER PIPING THROUGHOUT—** . . . everlasting! No sediment, closing rust, or expensive replacement!

**DOUBLE FLOORS THROUGHOUT—** . . . sub-flooring adds support, strength and stability for your home!

**LUXURIOUS KITCHEN UNIT ADDS BEAUTY—SAVES STEPS**

The answer to a housewife's prayer in a white, red-trimmed, unit from the famed Keystone Cabinet Company . . . noted for original design, quality materials.

**COLONIAL BUILT-IN CORNER CABINET IN DINING ROOM**

All the simplicity and quiet beauty of a true Southern Colonial masterpiece, and, best of all, it's Curtis "quality made!"

**SKETCHES such as these were used in Highland Park advertising to illustrate construction features of exhibit home.**

**NO HOME IS TRULY MODERN WITHOUT A VICTOR *In-Bilt* VENTILATOR**

Don't forget to glamorize your Kitchens with Victor In-Built Ventilators. Your clients will recognize and appreciate your choice of "Victor", the outstanding name in Kitchen ventilation.

Write today for the latest VICTOR Catalog, showing the complete range of sizes and prices, a type for every home.

VICTOR ELECTRIC PRODUCTS, INC.

Dept. IB-216 : 2950 Robertson Avenue : Cincinnati, Ohio

Proof that CEMCOAT stood out Best By Test in competition with the best known Mill White and Synthetic Enamel when exposed to Ultra-Violet Light and to Chemical Fumes will be sent promptly upon request. CEMCOAT has extraordinary light reflecting power, a smooth, highly lustrous porcelain-like surface, will not crack, chip, peel, or yellow. Spreads generously, covers well, dries over night, and is washable.

Excellent for Institutional, Industrial and Residential walls, ceilings and woodwork.

Mail coupon today for proof of CEMCOAT's superiority.

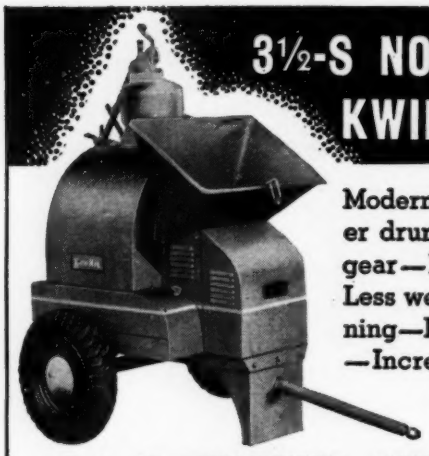
Dept. AB6, L. Sonneborn Sons, Inc., 88 Lexington Avenue, N. Y. C.

YOUR NAME_____

ADDRESS_____

CITY_____ STATE_____

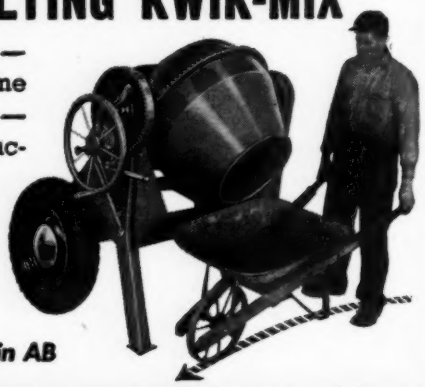
3½-S NON-TILTING KWIK-MIX



Modern rubber tired roller drum drive—No ring gear—No countershaft—Less wear—Smooth running—Load while mixing—Increased production—End discharge.

3½-S TILTING KWIK-MIX

End discharge—Air-cooled engine—Light weight—Welded construction—Anti-friction bearings—Spring mounting—High speed trailing.



*Write for Bulletin AB*

KWIK-MIX CONCRETE MIXER CO.
PORT WASHINGTON . . . WISCONSIN



MAKE BIG MONEY

SURFACING FLOORS

American Floor Sanders are making big money for a lot of men (we'll send you their names and pictures). There is no reason in the world why you shouldn't also be making this big money.

BE OWN BOSS

You already know a lot about the building game and this is a real chance to get into something for yourself and be your own boss.

EASY TO RUN

American floor sanders are easy to run. There is no hand scraping the American way and no skill required—in fact, inside of a few hours you can run one as well as an "old timer." American Sanders are easy to take from job to job and you don't need any helpers.

Sometime during every man's life he has to decide whether to go ahead and "be somebody" or stay in the same old rut.

GET DETAILS

Find out more about this interesting money-making work today by signing and sending in the coupon below for free details.

RETURN COUPON BELOW

AMERICAN FLOOR SURFACING MACHINE COMPANY

511 SO. ST. CLAIR ST. TOLEDO, OHIO

Gentlemen:
Send complete details and prices without cost.
☐ I want to go into floor surfacing business.
☐ I would use sander in my contracting business.

Name .....
Street .....
City ..... State .....


## What Price Houses?

*(Continued from page 67)*

detailed picture of the price classifications from $500 up to $25,000 and over, for these cities, and then a further analysis for these cities in four different population groups In using these figures it should be remembered that these permit valuations habitually run lower than actual construction costs. The Bureau of Labor Statistics states that on the average construction costs are 16 per cent greater than the permit valuations.

Now, applying the percentages of Table 5 to the estimated number of new single family houses to be built in 1941, *American Builder* has worked out the estimate shown in Table A. To simplify these figures the groupings are somewhat larger than in the Labor Department's Table 5.

The differences between this permit analysis by the Bureau of Labor Statistics and the FHA analysis of its 1939 volume are substantial but probably quite to be expected. The accompanying Table, B, shows a comparison of the percentages obtained for each price class by these two studies. Notice that FHA had very little under $2,000, while the permit record shows over 14 per cent in that classification. This is understandable; because the minimum specifications for FHA approval rule out the extremely small and cheap houses. Again, with reference to the higher priced homes, notice that the building permit analysis showed 3 per cent of the total to be houses of $10,000 and over, whereas FHA showed only 2.2 per cent. This, undoubtedly, reflects the tendency of the better financed home builders to finance by other ways than through FHA.

Furthermore, the Bureau permit figures are for construction costs only and are undervalued to the extent of 16 per cent whereas the FHA figures include land value, as they are based on mortgage data.

### Table B.–Per cent of Total 1-Family Homes Reported

| | *by B. L. S.** | *by FHA*** |
|---|---|---|
| $10,000 and over | 3.05 | 2.2 |
| $ 8,000 to $10,000 | 3.1 | 4.4 |
| $ 6,000 to $ 8,000 | 10.0 | 25.0 |
| $ 5,000 to $ 6,000 | 12.7 | 24.3 |
| $ 4,000 to $ 5,000 | 19.4 | 24.9 |
| $ 3,000 to $ 4,000 | 22.8 | 16.5 |
| $ 2,000 to $ 3,000 | 14.6 | 2.6 |
| Less than $2,000 | 14.35 | 0.1 |

*Bureau of Labor Statistics analysis of 248,447 new house permits in 361 cities, 1936-7-8.

**Federal Housing Administration analysis of 115,500 new houses built in 1939 under its insured mortgages.

* * *

## Asbestos Siding Profits

*(Continued from page 79)*

natingly. This is the most common method and makes a good job. Wood corner boards are sometimes used with the asbestos sidings butting against their edges.

Asbestos siding should always be applied in dry weather, and at least a whole surface such as one side of a building completed at one time for fear of rain and consequent dampness getting behind the sidings. All places where water may drip from other materials, and stain new asbestos sidings, should be painted, or protected in some way. Rusty screens, copper flashings, iron brackets and the like should first be painted or varnished, or removed.

## Blue Mountain Farms

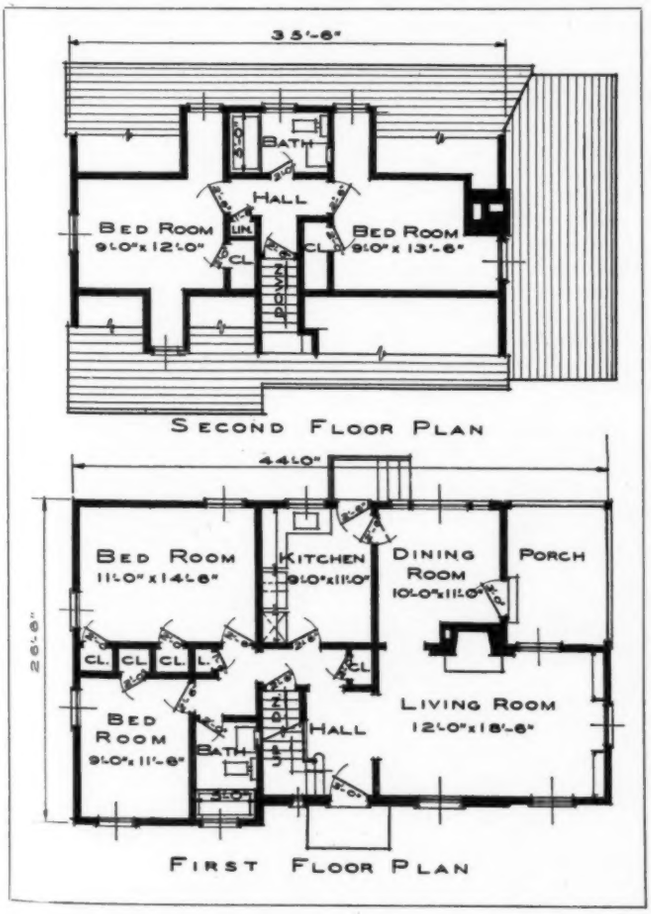
*(Continued from page 63)*

weatherstripping. He gives an *unlimited* guarantee to his work and will come back five years later if any defects occur.

Another example is the oil burner service. The owner of the company supplying this equipment has been in business locally 20 years; his office is two miles from the development; he has extremely well qualified service men who give 24-hour a day service. The firm is financially sound, so that in the years ahead the owner of a Blue Mountain Farms home can count on this high type of service.

Braillard also points out the fact that his linoleum subcontractor is one of the few men in the entire region who is not only able to do a thoroughly skillful quality job but will come back and make good on any defects and, what is more important, *is financially able to do so.* Braillard points out that one reason why home owners who buy homes on price alone frequently get poor service is that the men who did the various subcontract operations simply did not get enough so that they can afford to come back and render service later. He believes in paying a fair price for a quality job—a price that is high enough to include a guarantee

*(Continued to page 138)*




**QUAINT Blue Mountain Farms Colonial has "lean-to" end into which living room extends. Porch is placed at rear for view and privacy. McMurray & Schmidlin, architects.**


Territory Open NOW to Responsible MANUFACTURERS' AGENTS In Building Specialties Field

IF an item of popular demand with good profit possibilities would interest you, get our sales proposition on

TECO TERMITE SHIELDS

Scientific protection, the TECO way, against termites is new, needed, and saleable for new homes and factory buildings. In termite infested areas TECO Termite Shields give new building protection demanded by architects, builders, home owners . . . No technical training, no investment required, quick selling, good margin. Contact leads supplied, sales assistance given. Only established, responsible building specialties sales representatives wanted. Write.

TIMBER ENGINEERING CO., INC.

Dept. H-6, 1337 Connecticut Ave., Washington, D. C.

G-E BRIGHT SPOTS ON G-E WIRING WILL HELP SELL HOUSES

When G-E wiring materials are installed in the houses you build, the wiring systems can be marked with G-E Bright Spots. These Bright Spots are attractive cards that call attention to the comfort and convenience provided by the wiring.

People today are interested in good wiring. They know that abundant lighting and appliances require it.

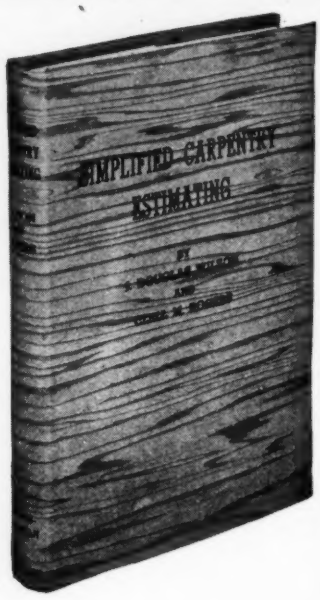
General Electric's line of wiring materials is complete including conduit, wire and cable and wiring devices. Moreover, General Electric has prepared a handbook on modern home wiring methods.

For further information on G-E wiring materials see the nearest G-E Merchandise Distributor. For sets of the G-E Bright Spots or for the G-E Home Wiring Handbook send the coupon.

General Electric Co., Section D-1806
Appliance and Merchandise Dept.
Bridgeport, Conn.
Sirs: Please send me
( ) G-E Home Wiring Handbook
.... sets of the G-E Bright Spots
Name .....
Address .....
City ..... State .....

GENERAL ELECTRIC

**Just off the Press**




# SIMPLIFIED CARPENTRY ESTIMATING

**By J. Douglas Wilson**
*Head, Building Trades Department,*
*Frank Wiggins Trade School,*
*Los Angeles, California*

**and Clell M. Rogers**
*Mathematics Instructor, Venice*
*High School, Venice, California*

Based upon the series of articles entitled *How to Estimate Accurately,* which appeared in *American Builder and Building Age* last year, this new book explains the "taking off" of a bill of material for the construction of a frame house. Simple arithmetical methods of accurately estimating all costs are explained step by step.

**Chapter Headings**

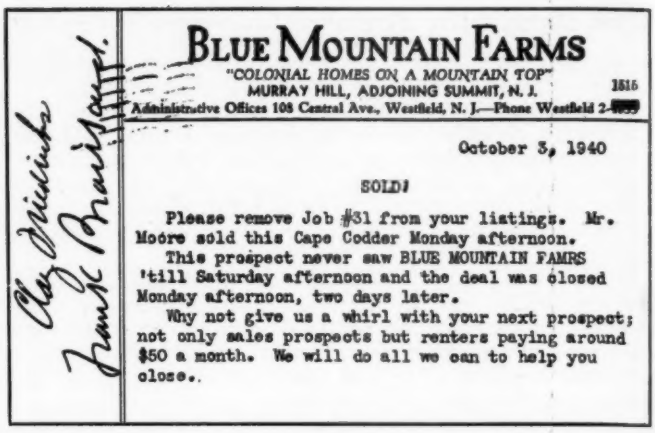
Estimating Fundamentals. Foundation Material. Framing. Exterior Finish. Interior Finish. Hardware. Building Information and Tables. Index.

208 pages, 71 illus., 5 x 7, cloth, $2.50

**Book Department**

**AMERICAN BUILDER and BUILDING AGE**

**30 Church Street, New York, N. Y.**

**BLUE MOUNTAIN FARMS**
"COLONIAL HOMES ON A MOUNTAIN TOP"
MURRAY HILL, ADJOINING SUMMIT, N. J. 1515
Administrative Offices 108 Central Ave., Westfield, N. J.—Phone Westfield 2-[illegible]

October 3, 1940

SOLD!

Please remove Job #31 from your listings. Mr. Moore sold this Cape Codder Monday afternoon.

This prospect never saw BLUE MOUNTAIN FAMRS 'till Saturday afternoon and the deal was closed Monday afternoon, two days later.

Why not give us a whirl with your next prospect; not only sales prospects but renters paying around $50 a month. We will do all we can to help you close..

Cleo Friedrichs
Frank Braillard

**DARK BLUE postcards bearing their personal signature are sent by Friedrichs and Braillard at frequent intervals to real estate brokers, keeping them interested in developments.**

*(Continued from page 137)*

and service that every home owner is entitled to.

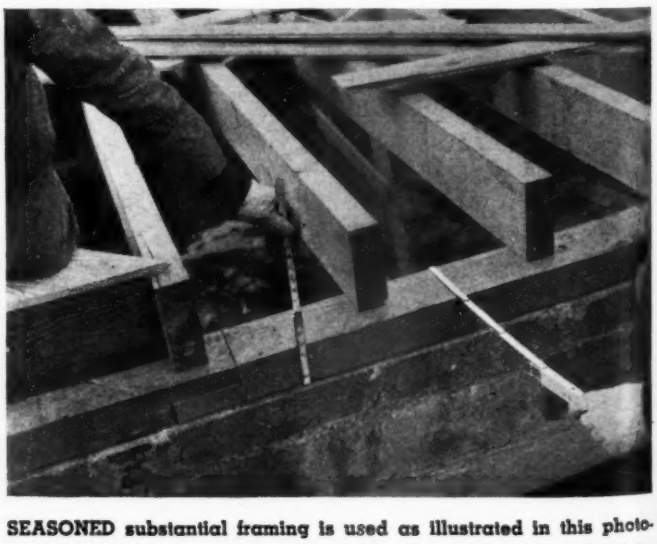
Quality construction methods are carried out all through the Blue Mountain job. The firm contracts for all its labor and buys all materials. There is no advantage to any workman in skimping on material. The firm uses small carpenter crews and has several two-man crews of older carpenters who do four houses a year. While the older men cannot work as fast, they are superior craftsmen. Several of the carpenter crews and one five-man mason crew have never left the tract since its inception and have been steadily employed.

Building operations are carefully scheduled to avoid unnecessary speeding up and are started early in the year so that houses can be completed in ample time for the spring or fall buying season.

Sloppy painting, careless paperhanging and inexpert linoleum laying are among the principal causes of dissatisfied customers, Braillard believes. An unhurried building schedule enables him to make sure of a careful job. The paperhanging crew consists of three men of long experience and absolute reliability. Braillard personally selects modern, attractive wallpaper and color schemes that set a high note.

Again and again Braillard has stressed that the better type subcontractors cannot be obtained on a price basis alone. He believes that the extra cost of the quality worker and the quality materials, which, of course, must be passed on to the purchaser, is money well spent in the long-term interests of the home owner. After buying more than half a million dollars worth of materials and labor in the past three years, Braillard is more than ever convinced that people "never get something for nothing."

"Price buying means price selling," he declares, "and we know that this is incompatible with true value. Cut throat competition has lost us some sales, but in the long run our 'quality' policy pays out."

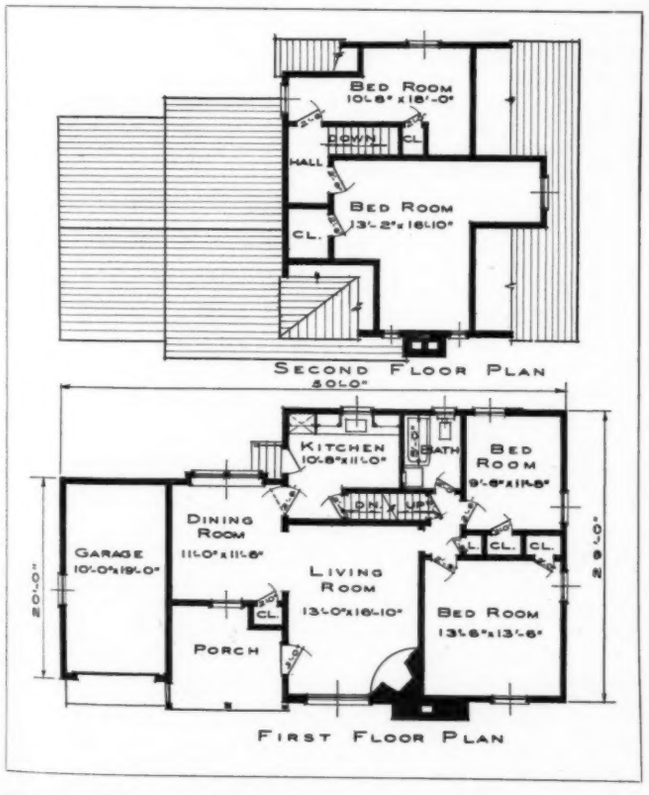


**SEASONED substantial framing is used as illustrated in this photograph, showing 4 x 6 notched and lapped sill and 3 x 8 joists.**

**LARGE WINDOWS feature the Blue Mountain Farms homes, and the inset curved bay in this home sets an unusually fine note.**

Merchandising and selling at Blue Mountain Farms is geared to a thorough understanding of the type of community being developed and the kind of buyers that will fit in. The project is in a heavily wooded area on the edge of the huge Watchung Park Reservation near Summit, N. J. It is definitely "out in the country," and that means it appeals to a certain type of buyer interested in this type of community. There are no heavy traffic

*(Continued to page 140)*




## Floor Plans of Front Cover Home

**COVER DESIGN features this outstandingly popular model home opened only a few weeks ago at Blue Mountain Farms. In designing this home, Architects McMurray & Schmidlin, of Union, N. J., set a new high in small home architecture. Although the cubage is small, the plan provides a 13 x 17 ft. living room, two downstairs bedrooms and space for two additional rooms upstairs to be added later. The corner fireplace is an outstanding feature; pictures of this as well as the gaily decorated dining rooms are shown on page 63.**


**—A Sample Can Will Convince You That Gluing Has Been Revolutionized**

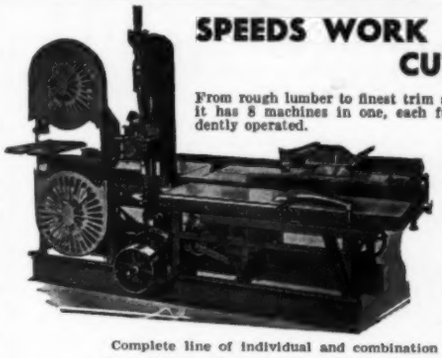
Here's the original One Part Plastic Resin Glue that builders, carpenters and woodworkers require. Being WATERPROOF, STAINFREE, ROT PROOF, ENDURING, it is preferred for all joining, trim, doweling, inlaying. IDEAL FOR DRY WALL CONSTRUCTION. Cold setting, quick acting—no waiting, no heating, no waste. Sold by Building Supply and Hardware Stores.

UNITED STATES PLYWOOD CORP.
*World's largest manufacturers and distributors of Plywood*
616 WEST 46th STREET, NEW YORK, N. Y.

SEND 25¢ in coin with dealer's name for generous test can and glue manual.

**WELDWOOD**
PLASTIC RESIN
**WATERPROOF GLUE**

Builders—Get Wise To SAVUTIME!
In Detroit alone twenty or more new homes are equipped with Savutime every day! In Rochester, N. Y., 75% of all new homes are Savutime equipped! Outstanding home developments the country over—like Long Island's Speedway Homes —are using Savutime. They realize that inexpensive Savutime is a worthy substitute for expensive automatic hot water heaters—a substitute with so much appeal that it actually helps to sell new homes. Get the facts. Write for literature and name of nearest distributor.
SAVUTIME SALES CO.
110 Manhattan St.,
Rochester, N.Y.
BATH
KITCHEN
LAUNDRY
SAVUTIME
GAS WATER HEATER
PUSH-BUTTON CONTROL



**SPEEDS WORK**
**CUTS COSTS!**

From rough lumber to finest trim and finish . . . because it has 8 machines in one, each full-sized and independently operated.

**NEW MODEL "A" PLANING MILL SPECIAL**

22" band saw, 12" jointer, tenoner, hollow chisel, mortiser and borer, rip and crosscut saw, cut-off saw and reversible spindle shaper and sand disc. Send for catalog.

Complete line of individual and combination machines

*Good Woodworking Machines Since 1887*

THE PARKS WOODWORKING MACHINE CO.
Dept. BL-6 1524 Knowlton St., Cincinnati, Ohio

**New BEVIL DEVIL ALL PURPOSE SET for**

YOU need these tools for slicing, grooving, beveling or rabbeting Insulation Boards. No time wasted to adjust or change blades, or attach parts. Made of hard maple, light weight, easy to work with. Sharp, strong Bevil-Devil Blades cut thru toughest insulation boards leaving clean, smooth edge. Set consists of three tools, five blades, attachments.

ONLY **$3.50** complete

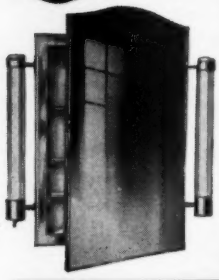
Sent postage paid anywhere in U.S.A.

**KIMBALL** MANUFACTURING COMPANY, INC.
1703 GREENLEAF ROYAL OAK, MICH.

More BEAUTY VALUE APPEAL

Mastercraft CABINETS A COMPLETE LINE

Builders and Home Owners agree that Mastercraft Cabinets combine every feature desired—they are tops in quality—styled for beauty and utility—and are priced to make them outstanding values—creating real sales volume. Electric Lighted and standard models.



NEW! STAINLESS STEEL MODELS—the original stainless steel cabinet—built for lifetime service—recognized as America's most beautiful cabinet. Unusually low price. Write today for illustrated catalog, complete specifications, and prices on complete line.

National Metal Products Co.
DEPT. AB6 WATERLOO, IOWA

BOOKS ABOUT BUILDING

Authoritative information about the designing, construction and financing of buildings can be found in up-to-date books. We will be glad to recommend suitable books on any subject you are interested in.

BOOK SERVICE DEPARTMENT

AMERICAN BUILDER AND BUILDING AGE
30 Church Street New York, N. Y.

Making these PRODUCTS is BIG BUSINESS TODAY

Get into the manufacturing of the "Big Five" concrete products: Block, Tile, Brick, Roof Tile and Drain Tile. Minimum equipment investment enables you to produce these units at bedrock costs and get the maximum profit from the job.

SUCCESS equipment is designed for low production cost, easy operation, simple maintenance and long life. Time proven and guaranteed.

Investigate the SUCCESS line—either to tie in with your contracting business, or as an independent products manufacturer. Write at once for copy of new SUCCESS catalog, which gives low factory-to-you prices and liberal terms. Send today.

Concrete Equipment Co.
514 Ottawa Ave. Holland, Mich.

SECTIONAL, GALVANIZED STEEL DOORS

RESIDENTIAL or COMMERCIAL

You'll win all-out approval from every client by installing this all-steel galvanized upward-acting door. It cannot warp, sag, split, or pull apart! It is weatherproof . . . repels fire . . . defies intruders and troublemakers! Smooth, easy, spring-counterbalanced operation. Built any size, with any number of light sections, and with motor, mechanical, or manual operation! Easy installation is a feature! WRITE FOR DETAILS ON THE KINNEAR STEEL RoL-TOP TODAY! NO OBLIGATION!

KINNEAR RōL-TOP

The KINNEAR MFG. CO. 1560-80 Fields Ave. COLUMBUS, OHIO

## Blue Mountain Farms

*(Continued from page 139)*

highways to bring in sightseeing customers. The entire surrounding area is closely restricted to permanently keep out inroads by commercial or other types of building.

The one exception is the new 3-million-dollar Bell Telephone Research Laboratories now under construction in a huge rural tract nearby. This project, which will ultimately bring in some two thousand engineers, research men and other white collar employees, is having a definite effect on the future of the the development, but sales are by no means restricted to this one firm.

H. C. Friedrichs, who has charge of sales, believes in employing the services of qualified real estate brokers in addition to the use of several full-time salesmen on the job. He believes the firm has amply demonstrated that the qualified real estate broker brings in a plus volume of business that is extremely important to the Blue Mountain Farms type of project. Several lively inspection parties are held at Blue Mountain Farms each year at which local realtors and their employees are guests. They thus become well acquainted with Blue Mountain Farms and its agents. In addition, frequent distinctive blue postcards are mailed out bearing the signatures of both Friedrichs and Braillard, carrying some message of interest to the broker and keeping him informed of progress at Blue Mountain Farms.

Typical of the messages are the following:

"ANOTHER FIRST—Mr. Frank Dunn brought his first prospect to Blue Mountain Farms *and sold him.* The Smith Company's first prospect here also bought. Mr. Houston, of Summit, had the same experience, as did Cooper & Stiles of Westfield. Frankly, doesn't it look as if we *had* something here at Blue Mountain Farms!

"ORCHIDS TO THE SMITHS—We mean the Smith Company of Short Hills. The orchids are being tossed because in two weeks' time Mrs. Gaillard Smith, of the Smith Company, sold two or three homes. Congratulations and thanks to a great outfit."

Behind their aggressive selling methods lies a meticulous attention to the details of the house that will have an effect on the home buyer. The model homes are completely decorated and done in an unusually striking, tasteful manner. The firm does not hesitate to spend $1.50 and $2 a roll on wallpaper in order to get something that will make an impression. Closet interiors are painted in deep tones that catch the eye of the customers the minute the door is opened. At least one model is fully furnished in co-operation with a local nearby department store.

The houses on display are kept in spick and span condition. As Braillard put it, "Altman's department store would sell few suits if the salesman rummaged through a pile of crumpled apparel and pulled one out to offer a customer. We clean every house after each week end's inspection and just before it. Windows are washed, linoleum waxed, sinks and bathtubs scrubbed, and sills, mantels and baseboards carefully dusted. Construction materials are piled at the rear of houses where they do not disfigure the yard."

Newspaper advertising is used to bring prospects to the property, and here great care and skill are taken to appeal to a particular class of buyer. Architect's drawings that convey the feeling of the neighborhood are used. The builders are sticklers, however, for seeing that any drawings published do not exaggerate or mislead. They have found that prospects resent coming out to a property to see a house which bears no resemblance to the published advertisement they saw.

On the subject of service to the home owner Braillard is very emphatic. He believes buyers must and can be made to appreciate the importance of sound construction and an honest builder. "If an automobile buyer gets a lemon of a car, he can take a small loss and get out," he declares. "He can trade his car in at a hundred different places and buiy a new one.

"With a house, it's different. It's the buyer's baby from then on. In order to sell it he must have it put in good condition.

"A house is the last thing in the world that should be bought on price."

### Specifications

Specifications of the houses at Blue Mountain Farms are drawn with the greatest care and go into fine detail, covering 18 closely typewritten pages. A copy of the specifications is supplied to each home owner. Brief extracts showing the quality

4 Coats of Paint **BAKED ON FABRIC**

DOUBLE • PURPOSE WALL DECORATION appeals instantly to Home-buyers who recognize the all-important feature of low upkeep cost over a long period of years.

Long-wearing, durable, abuse-resistant SANITAS is a real selling point where active, growing children are concerned. Mild soap and water keeps SANITAS spotless. Its Fabric base is a permanent structural reinforcement.

Just a few cents more per month for the term of the mortgage pays for all the extra advantages of nationally-known SANITAS . . . the permanently washable fabric wall covering that PROTECTS WHILE IT DECORATES.

**feature**
DOUBLE • PURPOSE WALL DECORATION
for plaster or dry wall house jobs in all price ranges.
DOES A WALLPAPER JOB . . without using wallpaper!
DOES A PAINT JOB without using Paint!

SANITAS X-RAY
See how 5 successive processing steps (1) start with a strong cotton fabric base; (2) impregnate it; (3) coat it to render it stain-proof; (4) strengthen it . . . and (5) finally give it the decorative character that makes everyone agree "SANITAS is winning a new name for BEAUTY."

Sanitas
FABRIC WALL COVERING
See this X-RAY

STANDARD COATED PRODUCTS CORP. AB-6
40 Worth Street, New York, N. Y.
Send the SANITAS X-RAY, free samples, and information to:—
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ADDRESS_____
CITY_____ STATE_____


products and material used include the following:

CEMENT—Nazareth Cement Co.
WATERPROOFING—Trimix, L. Sonneborn Sons, Inc.
DAMPER—H. W. Covert Co.
PLASTER—(Sanded and finish) U. S. Gypsum Co.
ROCKLATH—Corner beads and corner rights, U. S. G.
COPPER LEADERS—Chase Brass & Copper Co.
TILE—Mosaic Tile Co.
SHINGLES—Certigrade Red Cedar Shingles.
WOOD WINDOWS, frames and sash—Curtis Cos.
WEATHERSTRIPPING—Brass, bronze, copper, zinc and aluminum, Niagara weatherstrip equipment.
TRIM—Curtis Mitertite trim.
MEDICINE CABINET AND FIXTURES—Philip Carey Co.
DOOR HARDWARE—National Brass Co.
LINOLEUM—Congoleum-Nairn.
SCREEN WIRE—Chase Brass & Copper Co.
WROUGHT IRON HARDWARE—(H & L hinges) Stanley.
PAINTS AND ENAMELS—Devoe & Raynolds.
ROOF STAIN—Cabot's Long-Bodied Shingle Stain.
SHUTTER PAINT—Cabot's Collopakes.
CEILING PAINT—Luminall Casein paint.
COPPER FLASHINGS—Chase Brass & Copper Co.
COPPER TUBING—(Water pipe) Chase Brass & Copper Co.
LIGHTING FIXTURES—Chase Brass & Copper Co., Lightolier Co.
WALLPAPER—Thibaut Co.
KITCHEN AND BATH—Duray scrubbable paper.
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PLUMBING FIXTURES—Standard Sanitary.
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CONTROLS—Minneapolis-Honeywell.
GAS RANGE—Magic Chef.
RADIATORS—American Radiator Co.
INSULATION—Johns-Manville and U. S. Gypsum Co.
BRICK—Sayre and Fischer.
STEEL WINDOWS—Fenestra.

## Individually Owned Homes Form Bulwark Against Our Enemies, Says Blackstock

"THE twenty-five millions of individually owned homes in this country are the nation's invincible bulwark against all enemies," declared Carl Blackstock, president of the Blackstock Lumber Company, Seattle, Wash., in an interview following his recent election to the presidency of the National Retail Lumber Dealers Association.

"The American home owner is impervious to alien ideas. He has a solid and permanent stake in his country's safety and well-being," observed President Blackstock.

"The lumber and building material dealer is facing and discharging his responsibility as the economic keystone of the home building industry. It is only a few short years ago that home owning was a dream that could not be realized by the vast majority of our people. Ten years ago a $5,000 house was a cheap house, indeed, and for the great mass of wage earners it was simply impossible to acquire a home. Today the average of all houses built, big and little, is approximately $5,000 and almost no workman earns so little as to make home owning impossible. Thousands upon thousands of homes are being bought today for less than a dollar a day and for less than rent.

"Lumber and building material dealers have played and continue to play a significant part in this development, and upon them rests the responsibility of bringing to each local community the facilities for making home owning possible for all of our people. This is a responsibility that has been heightened as the nation is engaged in a gigantic effort to mobilize its industrial and human resources to defend the American Way.

"The progressive dealers in every community afford the only possible and efficient channel through which the building industry can operate by reason of the necessary local services that are part and parcel of the economic process of providing comfortable shelter for the provident among the nation's suburban and country population," concluded the newly-elected chief of the national association of lumber and materials dealers.

Sterling Model S-18 is used for easy wheeling in general purpose work, handling concrete, sand, gravel, brick, etc.

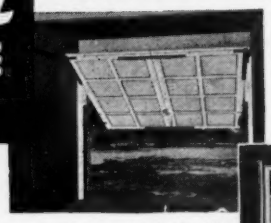
No. S-18 STERLING WHEELBARROW

Easy Wheeling
STERLING WHEELBARROWS
A Complete Line of STERLING Wheelbarrows for all Contracting and Industrial Purposes. Carried in Warehouse and Distributor Stocks in Principal Cities.

STERLING WHEELBARROW CO., MILWAUKEE, WISCONSIN

FLOATING ACTION "UNI-ROL" GARAGE DOOR

LOW COST!
HIGH QUALITY
ALL PARTS TOXIC TREATED
TWO STOCK SIZES IN TWO ATTRACTIVE DESIGNS SHOWN



Complete with Stanley "Swing Up" Hardware Bronze Cylinder Lock and Metal Weatherstrip.

Doors 1¾" thick. Prefitted for 8-0 x 7-0 and 8-0 x 6-6 openings.

The popular price of this "QUALITYBILT" smooth operating door creates real sales volume. Easy to install. Only 13¾" headroom and 21½" sideroom needed.

If your dealer can't supply you write us, Dept. AB-641
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"QUALITYBILT" WOODWORK DUBUQUE, IOWA

For ASBESTOS SHINGLE SIDING
CALBAR CAULKING COMPOUND

It is necessary to seal Nail Holes, Corners and Openings around Windows and Doors in order to provide a really Waterproof Job—Use Calbar Caulking Compound.
Asbestos Shingle Siding usually requires a Brilliant White color or Brilliant Light Gray, other colors can also be furnished. Made in several Grades, easily applied with Calbar Pressure Gun.
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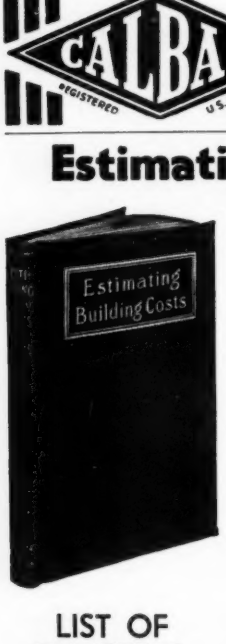
Estimating Building Costs
By WILLIAM ARTHUR
THIRD EDITION
Revised and Enlarged




This concise and handy volume has been specially prepared for the use of building tradesmen, contractors, material men, technical students, instructors and all others interested in the construction of dwellings, barns, stores, and industrial buildings of moderate cost.

It contains a collection of material data covering all classes of building construction and arranged for quick reference. There are ninety-one tables showing the actual number of hours of labor and quantities of material on work done. These examples are all worked out on the basis of $1.00 per hour for mechanics, and 60 cents per hour for laborers. The quantities are given and any change of rates can easily be adjusted by simple proportion.

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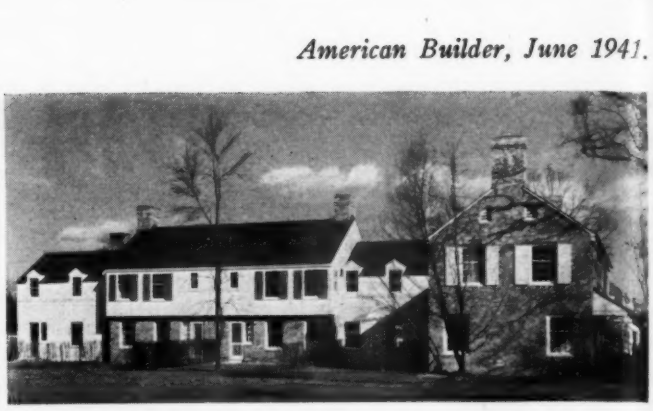

REAR VIEW of Country Gardens at Rye: attractive service entrance.

## Country Gardens at Rye

*(Continued from page 68)*

the plan is reversed. Upper floors of the 4-room apartments are cantilevered out 11 inches, giving extra bedroom space.

Pennsylvania Colonial architecture was Eschenbach's inspiration. The exteriors are in hand-split shingles, clapboard siding and second-hand brick. Colonial type double-hung windows with 8 panes in the upper sash and 12 in the lower are used, and many of the apartments have large picture windows.

Eschenbach eliminated gutters and leaders in the belief that they caused more staining and dripping than if none were used. Interiors carry out the Colonial motif, and each apartment has a log-burning fireplace, built-in bookshelves and pine-paneled walls.

### Partitions Are Thoroughly Sound Proofed

Partitions between apartments are sound-proofed by staggering the studs and packing the space with 6 inches of mineral wool. Second floor ceilings are also insulated, and the heating unit is a forced circulation hot water system.

Important in the success of the project is the large amount of land—three acres, of which only 12 per cent is covered by the buildings. Landscaping was designed by W. Lee Moore, a landscape architect who arranged a sunken garden in the center court surrounded by a brick wall covered with bittersweet and English ivy. The extensive landscaping does much to convey the home-like residential character. The planting includes extensive use of ivy and other vines on the buildings, and birch, apple trees, oaks and colorful flower beds in the courts.

Total construction and landscaping costs, including architect's fees, were $77,200. Of this sum, the apartment building and garages accounted for $53,800 in actual cost, plus a plumbing and heating expenditure of $12,200.

### Operating Costs Placed at $55 per Room a Year—$3,135 Total for Building

Rents run $80 a month for four 3½-room apartments, $90 for four 4-room apartments and $100 a month for six 4½-room suites. To these must be added garage rentals of $6 a month. Operating costs are placed at $55 a room a year for 57 rooms, or a total of $3,135. In addition, of course, there is the interest on the mortgage and the taxes on the property, plus a special fund set aside for amortization of equipment such as stoves, kitchen facilities, oil burners and the like. This sum will take care of obsolescence and depreciation. Interest is at the rate of 4½ per cent and amortization of construction costs over 25 years, at $5.55 a month for every $1,000. However, the margin between receipts and outlay, if maintained, would allow a 5 per cent return and complete retirement of construction capital in 20 years instead of the 4½ per cent for 25 years.

With the sturdiness of construction used by Builder Hackett in Country Gardens at Rye, and the rentals asked, which insure a high type tenancy, it is conceivable that the sum set aside for the depreciation of equipment and the maintenance charges, including decoration may not be needed for the first years. Instead, a substantial profit may be realized which could be used to write down costs, and make it possible to reduce rents at a future date, with the same return on capital.

## "TruCost" Estimating Figures for Home Designs in This Issue

"TruCost"

**The Editors have prepared a 28-page explanation of *American Builder's* "TruCost" system of quick, accurate estimating and offer it to anyone interested at 25 cents per copy. Please enclose payment when ordering. Address *American Builder*, 30 Church Street, New York City.**

### Page 62, June: McMurray & Schmidlin, Archts.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 134 lin. ft.; Trench Walls, 75 lin. ft.; Basement Floor, 840 sq. ft.; Garage Floor, 166 sq. ft.; Excavation per ft. deep, 37 cu. yds.; Outside Walls, 24.00 sqs.; First Floor, 8.40 sqs.; Second Floor, without fin. flg., 5.00 sqs.; Ceiling, 10.00 sqs.; Roof Pitch, 9″ rise per ft. run; Roof, 14.00 sqs.; Hips and Valleys, 36 lin. ft.; Cornice, C & F, 250 lin. ft.; Cornice, 8″, 120 lin. ft.; Partitions, 100 lin. ft.; Inside Finish OS Walls, 128 lin. ft.; Front and OS French Doors, 1 opg.; Rear and Grade Doors, 2 opgs.; Garage Door 8 ft. wide, 1; Inside Doors and Cased Opgs., 12 opgs.; Windows and Casements, 18 opgs.; Gable Sash and Louvers, 2 opgs.; Chimney, 34 lin. ft.; Main Stairs, 1; Porch Floor, 1.50 sqs.; Porch Ceilings, 1.50 sqs.; Porch Beam, 26 lin. ft.; Porch and Balcony Post and Newels, 5; Porch Roof, 2.00 sqs.; Porch Cornice, 28 lin. ft.

### Page 63, June: McMurray & Schmidlin, Archts.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 130 lin. ft.; Trench Walls, 100 lin. ft.; Basement Floor, 975 sq. ft.; Garage Floor, 198 sq. ft.; Excavation per ft. deep, 40 cu. yds.; Outside Walls, 26.00 sqs.; First Floor, 9.75 sqs.; Second Floor, without fin. flg., 8.00 sqs.; Ceiling, 12.00 sqs.; Roof Pitch, 9″ rise per ft. run; Roof, 20.00 sqs.; Hips and Valleys, 75 lin. ft.; Cornice, C & F, 200 lin. ft.; Cornice, 8″, 100 lin. ft.; Partitions, 150 lin. ft.; Inside Finish OS Walls, 200 lin. ft.; Front and OS French Doors, 2 opgs.; Rear and Grade Doors, 2 opgs.; Garage Door, 8 ft. wide, 1; Inside Doors and Cased Opgs., 14 opgs.; Windows and Casements, 15 opgs.; Gable Sash and Louvers, 1 opg.; Chimney, 34 lin. ft.; Main Stairs, 1; Porch Floor, 1.50 sqs.; Porch Ceilings, 1.20 sqs.; Porch Beam, 24 lin. ft.; Porch and Balcony Post and Newels, 7; Porch Roof, 2.00 sqs.; Porch Cornice, 24 lin. ft.

### Page 137, June: McMurray & Schmidlin, Archts.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 141 lin. ft.; Trench Walls, 48 lin. ft.; Basement Floor, 1050 sq. ft.; Excavation per ft. deep, 44 cu. yds.; Outside Walls, 20.00 sqs.; First Floor, 10.00 sqs.; Second Floor, with fin. flg., 4.00 sqs.; Ceiling, 14.00 sqs.; Roof Pitch, 10″ rise per ft. run; Roof, 16.00 sqs.; Hips and Valleys, 12 lin. ft.; Cornice, C & F, 200 lin. ft.; Cornice, 6″, 112 lin. ft.; Partitions, 260 lin. ft.; Inside Finish OS Walls, 240 lin. ft.; Front and OS French Doors, 2 opgs.; Rear and Grade Doors, 2 opgs.; Inside Doors and Cased Opgs., 22 opgs.; Windows and Casements, 24 opgs.; Chimney, 34 lin. ft.; Main Stairs, 1; Porch Floor, 1.25 sqs.; Porch Ceilings, .80 sqs.; Porch Beam, 20 lin. ft.; Porch and Balcony Post and Newels, 4; Porch Roof, 1.00 sqs.; Porch Cornice, 20 lin. ft.; Porch and Deck Rail, 28 lin. ft.

### Page 139, June: Front Cover Home

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 160 lin. ft.; Trench Walls, 60 lin. ft.; Basement Floor, 800 sq. ft.; Garage Floor, 190 sq. ft.; Excavation per ft. deep, 33 cu. yds.; Outside Walls, 24.00 sqs.; First Floor, 9.00 sqs.; Second Floor, with fin. flg., 4.00 sqs.; Second Floor, without fin. flg., 4.00 sqs.; Ceiling, 15.00 sqs.; Roof Pitch, 10″ rise per ft. run; Roof, incl. Porch, 18.00 sqs.; Hips and Valleys, 40 lin. ft.; Cornice, C & F, incl. Porch, 230 lin. ft.; Cornice, 6″, 100 lin. ft.; Partitions, 240 lin. ft.; Inside Finish OS Walls,

*(Continued to page 144)*


Free — Send for Plan that puts Floor-Sanding Profits In Your Own Pocket!

**REID-WAY "8" Floor Sanders**

**Reid-Way Oscillator with Terrazzo RUBS**

**Same Machine Works on Wood or Cement**

Gives a piano-like finish on wood on last cut, without extra labor costs. Change RUBS and use the Oscillator on Terrazzo, Marble Aggregate, Mosaic or Cement floors.

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Operates without gears, pulleys or belts. "Only One Moving Part" cuts maintenance costs.

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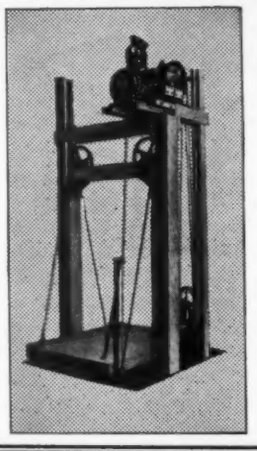

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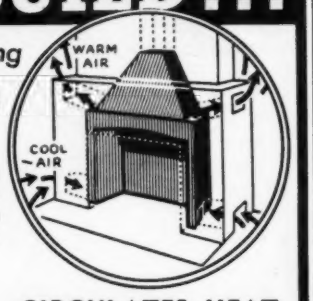


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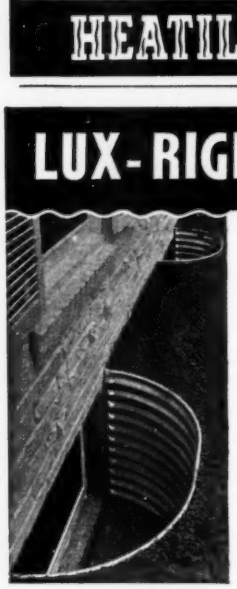
HEATILATOR Fireplace



LUX-RIGHT AREAWALLS



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*See SWEET'S File 1941, Sect. 13/44*

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SINGLES $3 TO $4
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Pittsburgh's Newest Hotel
. . . 400 rooms, all with radio at no extra cost, outside view and bath.
A Knott Hotel - Joseph F. Duddy, Mgr.


## TruCost Figures—

*(Continued from page 143)*

244 lin. ft.; Front and OS French Doors, 1 opg.; Rear and Grade Doors, 1 opg.; Garage Door 8 ft. wide, 1; Inside Doors and Cased Opgs., 16 opgs.; Windows and Casements, 22 opgs.; Gable Sash and Louvers, 2 opgs.; Chimney, 34 lin. ft.; Main Stairs, 1; Porch Floor, 1.00 sqs.; Porch Ceilings, 1.00 sqs.; Porch Beam, 12 lin. ft.; Porch and Balcony Post and Newels, 3.

### Page 64, June; Gonser, Bldr.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 158 lin. ft.; Trench Walls, 28 lin. ft.; Basement Floor, 1300 sq. ft.; Excavation per ft. deep, 50 cu. yds.; Outside Walls, 22.00 sqs.; First Floor, 13.00 sqs.; Ceiling, 13.00 sqs.; Roof Pitch, 9" rise per ft. run; Roof, 17.50 sqs.; Hips and Valleys, 24 lin. ft.; Cornice, C & F, 200 lin. ft.; Partitions, 180 lin. ft.; Inside Finish OS Walls, 160 lin. ft.; Front and OS French Doors, 2 opgs.; Rear and Grade Doors, 1 opg.; Inside Doors and Cased Opgs., 18 opgs.; Windows and Casements, 24 opgs.; Gable Sash and Louvers, 2 opgs.; Chimney, 32 lin. ft.; Porch Floor, .88 sqs.; Porch Ceilings, .25 sqs.; Porch Beam, 10 lin. ft.; Porch and Balcony Post and Newels, 4; Porch Roof, .50 sqs.; Porch Cornice, 24 lin. ft.

### Page 73, June; Modern Construction Co., Bldr.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Trench Walls, 300 lin. ft.; Garage Floor, 460 sq. ft.; Outside Walls, 28.00 sqs.; First Floor, 15.00 sqs.; Ceiling, 15.00 sqs.; Roof Pitch, 4" rise per ft. run; Roof, incl. Porch, 26.00 sqs.; Hips and Valleys, 40 lin. ft.; Cornice, Facia, incl. Porch, 224 lin. ft.; Partitions, 220 lin. ft.; Inside Finish OS Walls, 200 lin. ft.; Front and OS French Doors, 2 opgs.; Rear and Grade Doors, 1 opg.; Garage Door 16 ft. wide, 1; Inside Doors and Cased Opgs., 15 opgs.; Windows and Casements, 21 opgs.; Gable Sash and Louvers, 2 opgs.; Chimney, 18 lin. ft.; Porch Floor, 2.00 sqs.; Porch Ceilings, 1.75 sqs.; Porch Beam, 30 lin. ft.; Porch and Balcony Post and Newels, 3; Porch and Deck Rail, 24 lin. ft.

### Page 74, June; Ninneman, Bldr.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 94 lin. ft.; Trench Walls, 40 lin. ft.; Basement Floor, 700 sq. ft.; Garage Floor, 180 sq. ft.; Excavation per ft. deep, 24 cu. yds.; Outside Walls, 20.00 sqs.; First Floor, 5.25 sqs.; Second Floor, with fin. flg., 7.00 sqs.; Ceiling, 14.00 sqs.; Roof Pitch, 7" rise per ft. run; Roof, 11.00 sqs.; Cornice, C & F, 162 lin. ft.; Partitions, 162 lin. ft.; Inside Finish OS Walls, 188 lin. ft.; Front and OS French Doors, 1 opg.; Rear and Grade Doors, 1 opg.; Garage Door 8 ft. wide, 1; Inside Doors and Cased Opgs., 12 opgs.; Windows and Casements, 21 opgs.; Chimney, 34 lin. ft.; Main Stairs, 1.

### Page 76, June; Long Construction Co., Bldr.

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Trench Walls, 160 lin. ft.; Outside Walls, 18.00 sqs.;


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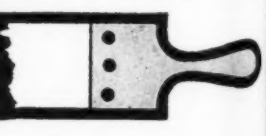

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**Page 81, June: Van Keuren, Archt.**

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Basement Walls, 210 lin. ft.; Trench Walls, 80 lin. ft.; Basement Floor, 1600 sq. ft.; Excavation per ft. deep, 70 cu. yds.; Outside Walls, 32.00 sqs.; First Floor, 16.00 sqs.; Second Floor, without fin. flg., 12.00 sqs.; Ceiling, 20.00 sqs.; Roof Pitch, 13″ rise per ft. run; Roof, incl. Porch, 28.00 sqs.; Hips and Valleys, 120 lin. ft.; Cornice, C & F, incl. Porch, 300 lin. ft.; Cornice 8″, 140 lin. ft.; Partitions, 224 lin. ft.; Inside Finish OS Walls, 220 lin. ft.; Front and OS French Doors, 5 opgs.; Rear and Grade Doors, 3 opgs.; Inside Doors and Cased Opgs., 22 opgs.; Windows and Casements, 36 opgs., Gable Sash and Louvers, 3 opgs.; Chimney, 36 lin. ft.; Main Stairs, 1; Porch Floor, 3.50 sqs.; Porch Ceilings, 2.50 sqs.; Porch Beam, 44 lin. ft.; Porch and Balcony Post and Newels, 14; Porch Rail, 16 lin. ft.

**Page 82, June: Rancho Pabco**

"TRUCOST" ESTIMATING FIGURES FOR THIS HOUSE: Trench Walls, 235 lin. ft.; Garage and Laundry Floor, 370 sq. ft.; Outside Walls, 20.00 sqs.; First Floor, 10.00 sqs.; Ceiling, 14.00 sqs.; Roof Pitch, 6″ rise per ft. run; Roof, incl. Porch, 17.50 sqs.; Hips and Valleys, 80 lin. ft.; Cornice, C & F, incl. Porch, 180 lin. ft.; Cornice, 8″, 180 lin. ft.; Partitions, 146 lin. ft.; Inside Finish OS Walls, 180 lin. ft.; Front and OS French Doors, 2 opgs.; Rear and Grade Doors, 1 opg.; Garage Door 8 ft. wide, 2; Inside Doors and Cased Opgs., 12 opgs.; Windows and Casements, 10 opgs.; Chimney, 20 lin. ft.; Porch Floor, 1.75 sqs.; Porch Ceilings, 1.50 sqs.; Porch Beam, 28 lin. ft.; Porch Posts, 2.

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*(Continued from page 72)*

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Ventilation by means of flues in corbelled chimney is shown in Fig. 6. Ventilation through screened cornice openings is indicated in Fig. 7. If construction at cornice is such that each rafter space is completely separated, small openings to each space should be provided, otherwise an occasional vent will suffice. Cornice ventilation can also be effected by spacing the various mouldings used in the cornice construction. A simple roof ventilator is shown in Fig. 8, and ventilation at the roof ridge may be accomplished as shown in Fig. 9.

Ventilation of attic spaces under flat roofs is indicated in Figs. 10 and 11. In Fig. 10 ventilation of the space above a suspended ceiling is effected by a combination of wall louver and roof ventilator. In Fig. 11 the same combination ventilates the construction where the interior finish is applied directly to underside of roof rafters. 2 x 2 or 2 x 4 furring across the upper edge of the rafters provides the openings for cross ventilation.


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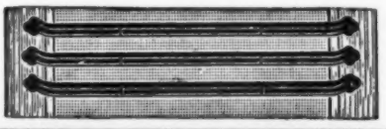

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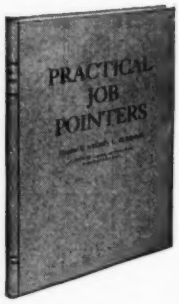


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# INDEX TO ADVERTISERS
## JUNE, 1941


**A**

Adam Electric Company, Frank ..... 122
Airtemp Division, Chrysler Corp. ..... 37
Allegheny Ludlum Steel Corp. ..... 125
Allith-Prouty, Inc. ..... 133
Aluminum Company of America ..... 148
American Builder Book Dept. ..... 30-31-50-95-130-138-140-142-146
American Cabinet Hardware Corp. ..... 123
American Floor Surfacing Machine Company, The ..... 136
American Lumber & Treating Co. ..... 96
American Radiator & Standard Sanitary Corp. ..... 52
American Rolling Mill Company, The ..... 108
Andersen Corporation ..... 32
Arkansas Soft Pine Bureau ..... 12
Armstrong Cork Co. ..... 35-101

**B**

Barber Asphalt Corporation ..... 25
Barber-Colman Company ..... 112
Barrett Company, The ..... 93
Bethlehem Steel Company ..... 24
Black & Decker Mfg. Co., The ..... 6-7
Bostrom-Brady Mfg. Co. ..... 143
Bradley Lumber Company of Arkansas ..... 11
Bruce Co., E. L. ..... 54
Buckwood Inn ..... 134

**C**

Calbar Paint & Varnish Co. ..... 142
Carbide and Carbon Chemicals Corporation ..... 124
Carey Company, The Philip ..... 46-106
Carnegie-Illinois Steel Corporation ..... 42
Carter Division, R. L. ..... 120
Celotex Corporation, The ..... 2
Chevrolet Motor Division ..... 8
Cincinnati Iron Fence Co., Inc. ..... 143
Coleman Lamp and Stove Company, The ..... 33
Colorcrete Industries, Inc. ..... 147
Columbia Steel Company ..... 42
Concrete Equipment Co. ..... 140
Construction Machinery Company ..... 128
Crane Co. ..... 28
Curtis Companies Service Bureau ..... 47

**D**

Detroit Steel Products Company ..... 3
De Walt Products Corporation ..... 48
Donley Brothers Co., The ..... 131
Douglas Fir Plywood Association ..... 19
Dunn Mfg. Co., W. E. ..... 100

**E**

Edison General Electric Appliance Co., Inc. ..... 16
Edwards Manufacturing Co., The ..... 122

**F**

Farley & Loetscher Mfg. Co. ..... 142
Flintkote Co., The ..... 45
Foley Mfg. Co. ..... 147
Frantz Manufacturing Co. ..... 97

**G**

General Electric Company ..... 137
General Electric Home Bureau ..... 18
General Motors Sales Corporation ..... 8
Grand Rapids Hardware Co. ..... 104
Great Lakes Steel Corporation ..... 29

**H**

Heatilator Company ..... 144
Henry Furnace & Foundry Co., The ..... 118
Homasote Company ..... 116
Homelite Corporation ..... 126
Hotel Lafayette ..... 132
Hotel Pittsburgher ..... 144
Huttig Mfg. Company ..... 109

**I**

Ilg Electric Ventilating Co. ..... 99
Independent Protection Co., Inc. ..... 146

**J**

Jaeger Machine Co., The ..... 124
Johns-Manville ..... 14-15

**K**

Kees Manufacturing Co., F. D. ..... 145
Kimball Bros. Co. ..... 143
Kimball Manufacturing Company, The ..... 139
Kimberly-Clark Corporation ..... 51
Kinnear Manufacturing Company, The ..... 140
Knapp Bros. Manufacturing Co. ..... 117
Kohler Co. ..... 102
Kwik-Mix Concrete Mixer Co. ..... 136